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# MEDICAL TARGETS

REFERENCES FROM THE COMMITTEE  
FOR THE TECHNICAL AND SCIENTIFIC SURVEY  
OF JAPANESE ACTIVITIES IN MEDICAL SCIENCES

U.S. NAVAL TECHNICAL MISSION TO JAPAN





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5 December 1945

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From: Chief, Naval Technical Mission to Japan.  
To : Chief of Naval Operations.  
Subject: Target Report - References from the Committee for the  
Technical and Scientific Survey of Japanese Activities  
in Medical Sciences.  
Reference: (a) "Intelligence Targets Japan" (DNI) of 4 Sept. 1945.

1. Subject report, enclosing references from the Committee  
for the Technical and Scientific Investigation of Japanese Activities  
in Medical Sciences, in addition to targets outlined in Fascicle M-1  
of reference (a), is submitted herewith.

2. The report was prepared by Commander P.B. Ayres, (MC)  
USNR.

*C. G. Grimes*

C. G. GRIMES  
Captain, USN

CLASSIFICATION THIS CORRESPONDENCE  
CHANGED TO Unclassified  
AUTHORITY C. No. 1000  
DATE 9-17-54







REFERENCES FROM THE COMMITTEE  
FOR THE TECHNICAL AND SCIENTIFIC SURVEY  
OF JAPANESE ACTIVITIES IN MEDICAL SCIENCES

"INTELLIGENCE TARGETS JAPAN" (DNI) OF 4 SEPT. 1945

FASCICLE M1, ADDENDUM M-AB

DECEMBER 1945



U.S. NAVAL TECHNICAL MISSION TO JAPAN







# INTRODUCTION

## MEDICAL TARGETS

### REFERENCES FROM THE COMMITTEE FOR THE TECHNICAL AND SCIENTIFIC SURVEY OF JAPANESE ACTIVITIES IN MEDICAL SCIENCES

The five enclosures submitted are rich reference sources, supplementing the designated target reports of the Medical Section of the Technical Department, NavTechJap. Japanese medical research, practice, procedures, opinions of medical and scientific authorities in JAPAN, and materiel gathered in the field are all noted. It is felt that these references form a compact body of material which will be of value in indicating the amount and degree of Japanese medical research and the present levels of medical education in JAPAN.

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# LIST OF ENCLOSURES

- (A) Final Report of the Committee for the Technical and Scientific Investigation of Japanese Activities in Medical Sciences.
- (B) Research Projects and Findings of the Army Medical College, TOKYO.
- (C) Organization of Japanese Army Medical Department.
- (D) Translation of titles of articles in various Japanese Medical Journals which have been submitted to WDC for forwarding to the Army Medical library.
- (E) Materiel and Equipment collected by Field Unit #4, 5250 Technical Intelligence Company, Medical Section.





ENCLOSURE (A)





## ENCLOSURE (A)

FINAL REPORT OF THE COMMITTEE FOR THE TECHNICAL AND SCIENTIFIC  
INVESTIGATION OF JAPANESE ACTIVITIES IN MEDICAL SCIENCES

\* \* \* \* \*

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AFPAC.

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## ENCLOSURE (A)

FINAL REPORT OF THE COMMITTEE FOR THE TECHNICAL AND SCIENTIFIC  
INVESTIGATION OF JAPANESE ACTIVITIES IN MEDICAL SCIENCES

\* \* \* \* \*

GENERAL HEADQUARTERS  
UNITED STATES ARMY FORCES, PACIFIC  
OFFICE OF THE CHIEF SURGEON  
(Advance Echelon)

5 December 45

TO: The Chief Surgeon, GHQ, AFPAC, APO 500, Manila

THRU: The Chief Surgeon, Adv. Ech., Tokyo

INFO: The Surgeon General, Washington, D.C.

SUBJECT: Final report of the Committee for the Technical and Scientific  
Investigation of Japanese Activities in Medical Sciences.

1. This committee was established at Manila by Order No. 640 of the Chief Surgeon's Office, GHQ, AFPAC, APO 500, dated 22 August 45, with the expectation of benefiting from independent Japanese research and development in the field of medicine and thus gaining in the overall knowledge in this science. The delegated functions of the committee were:

- a. Examine and evaluate such Japanese installations and personalities associated with the medical sciences as may be practical during the occupation.
- b. Correlate the activities of the medical section of the Enemy Equipment Intelligence Units Attached to the armies.
- c. Engage in the investigation of such other phases of Japanese Medical activities as may be directed by the Chief Surgeon.

2. The Committee arrived in Japan in two sections. One came with an Eighth Army unit (42nd General Hospital) to Yokohama, arriving at the same time as the advanced echelon of GHQ, and the other approximately a month later, with the Sixth Army (135th Medical Group) to Wakayama, then to Tokyo. The committee operated as a section of the Chief Surgeon's Office, Adv. Ech., Tokyo.

3. The plan for carrying out the investigation, as set up at Manila, was changed through force of circumstances and through prescribed procedure developing from the peaceful occupation and general cooperation from Japanese officials. The method of investigation that developed was, in general, as follows: Activities of the committee followed command channels, keeping in touch with the surgeons of the various echelons. Full cooperation was received from each. Official liaison channels were utilized in dealing with the Japanese. In many cases the Japanese Central Liaison Office, on request through G-2 Japanese Liaison, made available a representative to facilitated arrangements.



## ENCLOSURE (A), continued

4. In the above manner, over the past 3 months, every city of importance in medical education and every first class medical institution associated with research and developments in Japan, was visited. The heads of the institutions and professors of their departments were interrogated. Reprints and manuscripts were secured to supplement information gained during the interrogation. It is believed that a complete screening of Japanese Medicine for new developments and methods was accomplished.

5. A vast amount of literature and information concerning all sorts of medical activity over the past 20 years became subject to examination. This forced the committee to become a "screening" rather than an "investigation" agency. During the screening procedure, new developments, original research since 1940, unfamiliar procedures and theories evolved, and literature produced since 1940, were sought.

6. Through necessity, imposed by the scope of the mission, the committee accepted statements and reports from persons interrogated which it was unable to examine and properly evaluate. Many claims, some of them of definite scientific interest, were made by the Japanese. These claims, though not accepted as factual have been reported in the periodic reports. They were considered of interest and reported with that in view.

7. During the investigation other agencies, with somewhat similar interests, began their activities. These activities were coordinated with those of the committee as far as was possible. Information secured by the committee was made available to other agencies, when it seemed to be of primary interest of the other agency and to be reported upon by that agency. Thus, matters pertaining to Aviation Medicine were turned over to ATIG, FEAF; those pertaining to BW, to the BW officer, AFPAC; those of naval interest, to NavTechJap, SCAP, including research projects report from the Naval Medical College; those concerning the Atomic Bomb to the Atomic Bomb Survey; Technical Intelligence to G-2, AFPAC; and the Chairman acted as medical member of the Scientific Intelligence Survey.

8. Staff supervision of Medical Technical Intelligence was exercised through G-2, AFPAC. Plans, for the completion of technical intelligence coverage of Japan, were implemented.

9. The screening of Japanese Medical Activities in the Home Islands, with the exception of certain "Class B" institutions, which are considered of little consequence, it now completed, and such has been reported upon.

10. Attached, as Appendix "A", is a complete list of reports on institutions and special subjects. Attached, as Appendix "B", is a list of individuals whose activities have been examined. As Appendix "C", is a list of items of interest, with reference to sections of the report, and Appendix "D" is a list of institutions screened.

11. Composition of the Committee was as follows:

Lt. Col. William S. Moore, M.C.  
Lt. Col. James A. French, M.C.  
Lt. Col. Dan Tucker, M.C.  
Maj. Ray E. Trussell, M.C.  
Maj. Theodore G. Anderson, SnC.  
Maj. Arthur Stull, SnC.  
Maj. Charles L. Lecker, M.A.C.  
Capt. John E. Tobie, SnC.  
Capt. Edgar J. LaLonde, M.A.C.

W. S. MOORE  
Lt. Col., Medical Corps  
Chairman

## ENCLOSURE (A), continued

- Appendix "A" - Reports listed under Institutions.  
 Appendix "B" - Persons whose activities have been examined, listed alphabetically and by geographical areas.  
 Appendix "C" - List of Items of Interest.  
 Appendix "D" - Alphabetical list of Institutions screened.

## Distribution:

Chief Surgeon, GHQ AFPAC, Manila.....	3	copies
Surgeon General, Washington, D.C.....	5	info copies
A C of S, G-2, GHQ, AFPAC.....	7	" "
Economic & Scientific Section, SCAP...1	"	"
Public Health & Welfare, SCAP.....	3	" "
NavTechJap - Comdr. Ayres.....	2	" "
ATIG, FEAF - Capt. Castor.....	1	" "
U.S.S.B.S., Medical Section.....	1	" "

\* \* \* \* \*

APPENDIX "A"  
Reports Listed under Institutions

\* \* \*

I. TOKYO IMPERIAL UNIVERSITY  
 Government Institute for Infectious Disease

Manufacturing Department

Parasitology Department

Colloidal Preparations of Various Metals and  
Biologicals

- I. Vaccine - Japanese B. Encephalitis (Kitsoka)
- II. Epidemiology of Japanese B. Encephalitis.
- III. Dengue

Acute Liver Necrosis Due to Infection of Shell-  
fish (Oysters and Mussels)The Action of Immune Serum on the Japanese En-  
cephalitis Virus Cultured in VitroInfectious Hepatitis Virus Isolation and Culti-  
vationDysentery of Unknown Etiology Occurring on  
Shikoku



*ENCLOSURE (A), continued*TOKYO IMPERIAL UNIVERSITY  
Government Institute for Infectious DiseaseManufacturing Department

Director: Dr. Saburo Kojima  
Assistant: Dr. Hidetake Yaoi

This department is responsible for the production of serum, vaccines, toxoids, and other biologic products. Results attained in the Research Department are immediately applied in this department.

The laboratories have not been modernized.

Samples of the products of this institute as well as cultures of strains of bacteria used and description of methods used will be forwarded under separate cover.

Attached is a list and description of biologicals prepared.

TOKYO IMPERIAL UNIVERSITY  
Government Institute for Infectious DiseaseParasitology Department

Dr. Nobutaro Ishii

The laboratory facilities are fairly good in this institute. Dr. Ishii does strictly research work and is probably doing the most important work in Tokyo on medical parasitology. The following subjects were studied:

Kala-azar: Transmission studies. Has transmitted leishmania forms to barnsters by the oral and cutaneous routes. Reprints attached.

Paragonimiasis: Dr. Ishii states that Dr. Yokogawa in Formosa has obtained good results in the treatment by means of emetine plus sulfanilamide.

Drugs: 4, 4' - Diguaanidine-didhenylsulfide has proven very effective in the treatment of Kala-azar. Sulfadibrom-benzene found effective in the treatment of bird malaria (reprint attached). Sulfapyridine in experimental spirochmetosis recurrentis (reprints attached).

Animal helminthology: Reprints attached.

TOKYO IMPERIAL UNIVERSITY  
Government Institute for Infectious DiseaseColloidal Preparations of Various Metals and Biologicals  
Summary of Work of Drs. Yoneji Miyagawa and Y. Moriya

I. Dealing with preparation of antimony powder colloid, silver powder colloid and other metal powder colloids.

Antimony, silver or other metals (Cu, Au, Mg, Zn, Cd, Hg, In, Si, Sn, Pb, As, Bi, S, Se, Te, Mn) are evaporated in vacuum by an electric heating unit and dispersed on the surface of crystalline dextrose. Photographs of the diagrams of the apparatus are attached.

## ENCLOSURE (A), continued

The dry powder is stable in vacuum, heat resistant for five hours at 800C and one hour at 1000C. It readily forms colloidal solutions in water having the same solubility as that of dextrose alone (40% or more). The aqueous preparations of the antimony colloid change color slowly due to oxidation of the antimony.

These various colloidal preparations have been used intravenously in both humans and experimental animals in the treatment of certain protozoan, metazoan and rickettsial infections as described below.

II. Dealing with the treatment of trypanosomiasis, leishmaniasis, schistosomiasis, clomorchiasis, filariasis, rickettsial disease and "lymphogranulomatosis inguinalis" with antimony or silver powder colloid.

(1) Trypanosomiasis. It is reported that intravenous administration of 1.0 cc of 0.007-0.009 antimony powder colloid solution to mice infected (presumably with *Trypanosoma gambiense*) at a time when the mice were definitely ill resulted in rapid degeneration of the flagellates and their complete disappearance from the blood after two hours. Clinical recovery was complete in one day.

Comparable results were claimed in the treatment of horses suffering from surra (*T. Evansi*) or dourine (*T. equiperdun*), with doses of from 50 to 200 cc of a one percent colloidal preparation. Excellent microphotographs show the reported degenerative changes in the trypanosomes.

(2) Leishmaniasis. Data is submitted on the treatment of leishmaniasis in dogs and squirrels. Good results are claimed. The protocols suggest that there were fewer leishmania demonstrable in smears from the organs of the treated animals, that their spleens were smaller and the body weight greater.

One human case of kala-azar, eight months duration, was reported cured in 66 days by intravenous injections of the antimony colloid. Apparently the powder used was three percent and was given in doses of 1.0, 1.5, 2.5 - grams in 50 cc of water. There were no toxic manifestations. A total of 10 doses were given in 24 days. A progressive improvement in the blood picture is tabulated.

(3) Filariasis. Treatment of eight cases of human filariasis using various doses of one percent or three percent antimony colloid powder resulted in disappearance of the microfilaria. The higher doses employed sometimes caused anorexia, nausea, vomiting or coughing.

The antimony preparation given to dogs infected with *Dirofilaria immitis* is reported to have killed not only the microfilaria but also the parent worm leading to embolic occlusion of the pulmonary artery.

(4) Schistosomiasis. Five human cases of *Schistosomiasis japonica* suffering from diarrhea and malnutrition but without splenic or hepatic enlargement were treated with the antimony preparation. The three percent powder was used in doses of 0.5, 1.0, 1.5, and 3.0 grams dissolved in 50 cc of water and injected intravenously every other day. The eggs in the feces disappeared after the fourth and eighth injection and did not reappear within a month and one half. Nausea, vomiting and coughing were occasionally observed. The patients gained weight and overcame their anemia. Seventeen similar patients treated with tartar emetic did not show such a favorable response although they were somewhat improved.

Treatment of experimentally infected dogs followed by post-mortem examinations showed that adult worms and eggs had either completely disappeared or were degenerate.



## ENCLOSURE (A), continued

Four severely infected cattle were treated; three recovered completely and one died during the course of therapy. At autopsy adult worms could not be found and eggs in the tissues were degenerate.

(5) Clonorchiasis. Both dog and human cases are reported to have been cured.

(6) Typhus. During a small typhus outbreak (type not stated) in Tokyo in 1943, seventeen patients were treated with a silver colloidal preparation. One (5.9%) patient died. Among ill not treated 30 (29%) died. It was claimed that treated patients showed rapid clinical improvement.

Antimony colloidal preparations were less satisfactory, since 10 (34.5%) among 29 patients so treated, failed to survive.

(7) Lymphogranulomatosis inguinalis. One case was treated with the antimony preparation with good results.

III. Dealing with the preparation of dry plasma, dry sera and bacterial toxins. This deals with drying plasma, serum and tuberculin by vacuum at 37° Centigrade. Dextrose is added for reasons which are not self-evident.

The following had been successfully maintained at room temperature for at least one year:

- a. Suspensions of *B. coli* (mixed with silicates)
- b. Lymphogranuloma venereum
- c. Cod liver oil
- d. Red blood cells
- e. Colloidal suspensions of antimony
- f. Colloidal suspensions of silver
- g. Tubercle bacilli
- h. Tuberculin (for skin testing)
- i. Human sera (immune and normal)
- j. Hyperimmune serum (diphtherium; antitoxin titres checked before and after)
- k. Plasma
- l. Quinine
- m. Plasmochine
- n. Ricketia

IV. Describing preparation of fat powder colloid and its use. By intermittently spraying fine droplets of oil on warm dextrose crystal kept under a low vacuum, powdered preparations of cod liver oil, butter, neutral fat, etc., were prepared. They contained from one to three percent of fat and could be added to water as 10 to 20% mixtures. No fat globules were visible under the microscope. If the aqueous preparations were left at room temperature in the open air some visible separation of fat occurred after 10 hours.

The 10 to 20% mixtures were used for intravenous injections in humans in doses of 50 to 150 cc every fourth day. An interesting series of weight curves were accumulated showing considerable improvement in malnourished patients.

V. Describing preparation of a "powder colloid of whole blood" and its use. Small amounts of whole blood are added repeatedly to dextrose and dried in a vacuum between each addition. This mixture of dried powdered whole blood and dextrose has been put into solution and given to humans by the intravenous route for the treatment of anemia, both acute and chronic. With use of the larger doses, hemoglobinuria "occurred with no harm."

## ENCLOSURE (A), continued

VI. Describing preparation of "powder colloid of bacteria" and its antigenic properties. Bacteria disintegrated by various procedure such as freezing and crushing, "colloid mill method" "Weimarus" method and the supersonic wave method, are dispersed on the surface of dextrose crystals in the same amount to dextrose powder, thorough mixing, drying in a vacuum and repetition of the same process.

The preparations are readily soluble in water, forming "typical milky turbid suspended solutions". It is claimed that studies in both humans and animals show the preparations to be more antigenic and less toxic than bacterial emulsions. Also the dry powder is more stable than the usual liquid preparations.

Samples of these preparations are being forwarded under separate cover.

TOKYO IMPERIAL UNIVERSITY  
Government Institute for Infectious Disease

Prof. Yoneji Miyagawa and Staff

I. Vaccine - Japanese B Encephalitis (Kitsoka)

Vaccine consists of 10% of 0.2% formolinized (suspension) of mouse brain. (in saline). Two subcutaneous injections of 0.8 and 1.0 cc are given.

One thousand individuals in test area vaccinated. However, no outbreak occurred so no human evaluation was possible. Serum from a greater portion of those vaccinated showed 1,000 or 10,000 neutralizing antibodies (per cc). (Neutralizing antibodies against 1,000 to 10,000 M.L.D. of virus).

Vaccine standardization: Three doses of vaccine 0.3, 0.5, and 1.0 cc given to 20 gram mice at five day intervals. Two weeks later mice resist 100 or 1000 intracerebral doses. (of virus?)

Five-tenths cc of serum from vaccinated individuals inoculated subcutaneously protects mouse 12 days later against 100 or 1000 intracerebral doses. Monkeys receiving 10 cc similarly protected in five days.

II. Epidemiology of Japanese B. encephalitis.

Kitaoka (1938) Tokyo Iji Shinshi (weekly medical journal) reports isolation of virus in the field from culex popiens var. pallens and aedes albopictus. Anopheles sinensis found on laboratory experimentation to be a vector. Tranovarian transmission was noted.

In regions where disease provalent-antibodies were found in a "normal" man (80-90%), dog and pigs (85%), horses (98%), cattle (88%). These observations were in the Tokyo area. Sera from Hokkaido was negative. Sera from Kobe and Osaka showed a lower percentage of positives. The percentile difference showed a relation also to mosquito incidence.

Active infection has not been noted in horses and cattle.

III. Dengue.

Claims for the isolation of a phenol susceptible dengue virus, some years ago, with the same filtration size as the yellow fever virus have been made. A sample of this virus is to be forwarded under separate cover.



*ENCLOSURE (A), continued*

Japanese studies with this virus showed no difference between it and the Java and Malayan strains.

A strain of dengue virus, isolated in 1943 by injecting patients whole blood intra cerebrally into mice, is now in its 200th mouse transfer. (With this virus) two to three percent of mice show paralysis two to three weeks after injection (no encephalitis).

Thirty-five hundredth cc of a 10% emulsion of the brain from the tenth mouse passage inoculated subcutaneously into humans, caused fever (39°) in 11 days that lasted for five days. A maculopapular rash lasting 20 hours appeared 13 days post-inoculation. Patients serum 12 days after illness, produced (?) encephalitis in 100% of the injected mice. Patients serum three weeks after inoculation neutralized mouse virus. The potency of the virus is constant between 10-4 (.0001 cc) to 10-5.5 (.00005 cc).

One experiment on human vaccination with 10% of a 0.25% formolinized mouse brain suspension (in saline) given in three doses of 0.5 cc, 0.8 cc, and 1.0 cc at weekly intervals, protected against 0.2 cc and 0.7 cc subcutaneous injections of infected human serum. The animal came down with a typical case of dengue.

TOKYO IMPERIAL UNIVERSITY  
Government Institute for Infectious Disease

Acute Liver Necrosis Due to Infection of Shellfish (Oysters and Mussels)

Toxin has been extracted from liver of the poisonous mussels and oysters by Dr. Akiba (Bacteriology Department of Tokyo Imperial University). It is water and alcohol soluble and thermostable. Immune responses were not studied. Toxin injected into mouse, cat, dog, rabbit, reproduced hepatic lesion; not in rat. Cause of rat resistance not known. Transplantation of normal mussels and oysters to affected regions of spring induced toxic properties; conversely toxic shellfish, transplanted to other regions, lost their toxic properties after a few weeks. Studies of plankton, in affected regions, were unrewarding.

Reprints on the pathology and clinical findings are attached.

TOKYO IMPERIAL UNIVERSITY  
Government Institute of Infectious Disease

The Action of Immune Serum on the Japanese Encephalitis Virus Cultivated in Vitro

Yoshio Kawakita

A "so-called" Immune Horse Serum prepared by inoculation with 10% mouse brain virus (Strain Kalinina isolated in 1935) over a period of five months, a total of approximately 2,250 cc was injected, inactivated virus in vitro and protected mice (8 to 10 gm) in a dilution of 1-10,000. (100 M. L. D.).

The Immune Serum also inactivated the virus in a culture flask - after 24 to 48 hours incubation at 35°C. Virus cultivated in chick embryo (9 day old) were likewise inactivated by the Immune Serum. (0.3 cc of serum in 2.7 cc Tyrodes solution inoculated with one drop of infected chick brain tissue.)

*ENCLOSURE (A), continued*

The possibility of serum therapy in Japanese encephalitis is indicated. No human experimentation is reported.

TOKYO IMPERIAL UNIVERSITY  
Government Institute for Infectious Disease

Infectious Hepatitis Virus Isolation and Cultivation  
Dr. Masami Kitaoka

Experiments were conducted involving numerous animals and techniques which resulted with claims for the isolation of the virus and mouse infection (subclinically) with transmission from generation to generation. This virus appears to be about the size of the herpes virus. The active agent produced some degree of immunity in mice, and the neutralizing antibody was detected in the sera of human convalescents. This new virus does not belong to the spontaneous pneumo-tropic mouse viruses, nor has immunological relation to the influenza-A-virus through cross immunity tests.

Cultivation of the virus in fertile eggs is claimed. Good-pasture Technique is utilized.

TOKYO IMPERIAL UNIVERSITY  
Government Institute for Infectious Disease

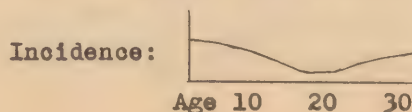
Dysentery of Unknown Etiology Occurring on Shikoku  
Dr. S. Kojima

Dr. Kojima is an authority on Enteric infections and Director of The International Salmonella Center for Japan. Recently several new species of Salmonellae have been isolated in his laboratory. Cultures of these are being obtained. The new species were not isolated in conjunction with any large outbreaks of disease but were from individual cases.

Questioned concerning dysentery, whooping cough and gonorrhea vaccines, Dr. Kojima did not consider them very effective. Concerning Influenza vaccination, he felt that the Japanese vaccine was effective for three months. He has an "A" influenza virus but his "B" virus is no longer viable. A culture of the "A" virus was requested from him. He in turn would like to procure the "B".

An epidemic of dysentery of unknown etiology that first occurred in Takamatsu-Kagawa Prefecture, Shikoku Island was thoroughly discussed. The disease has only been encountered on the one island and there only in the one prefecture and in that mainly in the city and towns surrounding Takamatsu. The disease first was brought to his attention in 1944, at which time there were 4,000 cases, with a 30% mortality. In 1945 there were 3,000 cases, with a 20% mortality. The disease is most prevalent from June to October, though cases occur up into December.

Clinically, the disease is like Shiga Dysentery, and exhibits the following symptoms: Tenesmus, frequent stools (30 to 100 per day); stool bloody with mucous; severe headache; coated tongue; loss of appetite; fever, as high as 103; onset sudden; the incidence by age groups is high - in children under 10 and in the group over 30. A typical curve would be as follows:





*ENCLOSURE (A), continued*

The course of the disease is severe in children and in the older groups. Mild cases occurring and not being reported in the middle aged group, may account for the curve presented. The duration is from one week to ten days. Those with the severe type infection die within 10 days.

*Shigella shiga* was not isolated from any patients. However, a paracolon-like organism, now called the "Obayashi strain", was isolated from 20 patients. This organism is agglutinated by the patients serum in a dilution of 1 - 800. *Shiga* and *Flerner* strains, of known origin, are agglutinated only in the low dilutions of sera (1 - 100.). The Obayashi strain is considered as the possible etiological agent, by the above. Cultures of this strain are being procured.

In therapy an oral vaccine, prepared with this strain, was tried in a few instances without success. A limited amount of sulfaquanidine, available and used, seemed to be effective. However, insufficient drug did not permit large scale use.

II. TOKYO IMPERIAL UNIVERSITY MEDICAL COLLEGE

Institute of Pharmacology and Pharmacy

Pathology Department, Serology Section

Brain Research Institute

Ophthalmology Department

Division of Physiotherapy and Internal Medicine

TOKYO IMPERIAL UNIVERSITY MEDICAL COLLEGEInstitute of Pharmacology and Pharmacy

Head by Prof. Kenzo Tamura

Associates: Prof. Ryotaro Asuma, Morizo Ishidate, Yoshito Kobayashi, and Kikuji Chikita

The last five years, due to limited laboratory equipment and supplies, very little new research was conducted. The following subjects were studied:

Digicorin: A glucoside of Digitalis isolated and structure determined by Tamura, Ishidate, Kobayshi and Tokita.

Use: Cardiac stimulant

Action: Less toxic than digitalis

Reprints and samples attached.

Vitacamphor: "P-oxocamphor"

Synthesized by: Tamura, Kihara, Ishidate

Use: Cardiac stimulant

Action: That of stimulation

Reprints and samples attached.

*ENCLOSURE (A), continued*

Bufootalis: "Senao" Extracted by Kobayashi

Use: Cardiac stimulant  
Reprints attached.

Estrogenic substances and Pituitary preparations. Reprints attached.

Copy of Japanese Pharmacopoeia is being forwarded under separate cover.

TOKYO IMPERIAL UNIVERSITY MEDICAL COLLEGE

Pathology Department, Serology Section  
Dr. Tomio Ogata

I. "Communin", a new drug studied by Dr. Ogata is of bacterial origin and used in the treatment of pyogenic infections and eczema.

The clinical use of bacterial filtrate was suggested by the fact that small doses of such filtrates will inhibit the Shwartzman phenomenon and Dr. Ogata believes the active substance producing the Shwartzman phenomenon stimulates the reticulo-endothelial cells to produce a substance harmful to bacteria.

The preparation of the filtrate is as follows. B. Coli are grown on Agar plates for 20 hours and washed off with saline. The Saline suspension is centrifuged and the supernate filtered through a Sietz or Berkefeld filtre. This concentrated filtrate is diluted about 100 times and given in one cc subcutaneous injections daily for three to seven days.

Approximately 1,000 patients have been treated with good clinical results and there are case protocols on about 300 cases.

Dr. Ogata believes the saline material is a carbohydrate and he and his associates are working on its isolation.

Attached is reprint with a local translation of same and one vial of the drug.

Reference is made to Journal of Experimental Medicine, Jan. 1, 1936, Vol. 63, No. 1, page 59-68, Inhibition of the Shwartzman Phenomena, by Tomio Ogata, M.D.

II. Studies on the Precipiton Reaction are also undertaken in the Serology Section. Attached is a reprint on same.

TOKYO IMPERIAL UNIVERSITY MEDICAL COLLEGE

Brain Research Institute

This institute appears to be a very loose knit affair; an institute in name only. It is directed by the professor of psychiatry, Dr. Yushi Uchimura.

Research work is divided into three fields - Anatomy, psychology, and hereditary Biology. The pyschiatry and neurosurgical wards of the University Hospital afford clinical material in connection with projects of the institute. Current projects are:



*ENCLOSURE (A), continued*

Effects of the Atomic bomb on the Brain and Nervous System.

Electroencephalography studies on epileptics, on effects of drugs on the brain, and comparative studies of waking and sleeping states.

Mental development of twins.

Histology of the brains of genius.

TOKYO IMPERIAL UNIVERSITY MEDICAL COLLEGEOphthalmology Department

Projects for Improvement of Vision (National Research Council)  
Prof. Yoshiharu Shoji

The major objectives and accomplishments of the National Research Council program are summarized in the attached reports submitted by Dr. Shoji. According to Dr. Shoji the myopia problem in Japan involves 15% of the population. Within this group about 20% have a myopia of three diopters or more and these are all due to elongated eyeballs and are incurable. Eighty percent have a myopia of less than three diopters and among this group one in five is due to spasm of accommodation which can be alleviated by atropine. At present fewer people are developing myopia and this is related apparently to the fact that there have been fewer students doing close work.

Professor Nakejima has been working with a hormone known as "melanophoren hormon" which is said to improve night vision in humans.

Under separate cover, three books and a set of reprints representing the work of Dr. Shoji, are being forwarded.

TOKYO IMPERIAL UNIVERSITY MEDICAL COLLEGEDivision of Physiotherapy and Internal Medicine

Prof. Takayoshi Misawa

Investigations were conducted on allergic diseases and hot springs therapy. There is very little hay fever in Japan, probably due to lack of wind-blown hay fever producing pollen. There is no ragweed pollen. Food allergy is not uncommon and the most common allergy producing foods in Japan were Eggplant, Bamboo sprouts, spinach, sea fish and buckwheat. Prof. Misawa believes the histamine content of their foods is the cause of their producing allergic symptoms.

Treatment used is Vitamin D and Calcium Salt therapy. Injection treatment with antigens is not used, but Mistamine injections are thought to be beneficial.

Reprints of Dr. Misawa's research work, published since 1940, are forwarded under separate cover.

*ENCLOSURE (A), continued*III. TOKYO ARMY MEDICAL COLLEGE

Clinical Division

Biologic Manufacturing Division

Parasitology Section

Physical and Chemical Laboratory

Penicillin Research Committee

Manufacturing Division, Niigata

Department of Pharmacology

Kanazawa Branch

Field Manuals

Research Projects and Findings (Enclosure (B),  
this report)

Organization of Japanese Army Medical Department  
(Enclosure (C), this report)

TOKYO ARMY MEDICAL COLLEGEClinical Division

Chief of Surgery - Colonel Nagaw (Mayo 1935-1936)

Surgery is done according to accepted procedures and no new techniques have been devised. There has been no experimental or clinical research of importance or of an original nature.

Ophthalmology - Colonel Yagamoto

Original work carried out during the war consisted of studies of color perception and extending the work of Ishahara by development of a new color chart for the detection of fatigue in color vision. Some work has been done on the use of the color blind to detect camouflage. Some thought has been given to the development of the so-called "6th sense" in the blind.

Maxilo-facial surgery - Lt. Col. Matsuki

Plastic surgery - Col. Toda

Urology and dermatology - Col. Tanahashi

Radiology - Maj. Misanou

Internal Medicine - Col. Hirobunji Osuzu

The department of internal medicine has been working mostly on clinical research in tuberculosis and in carrier detections in typhoid fever. No significant research has been conducted.

Orthopaedic Surgery - Col. K. Takigawa

Battle fractures are handled by skeletal wire traction and casting with windows. Wounds are left open and not packed. Secondary suture is used in suitable cases.



*ENCLOSURE (A), continued*

## Department of Neuro-Psychiatry - Col. Keisaburo Suwa

Located in separate building, called the "Konodai Insane Hosptial". Bed capacity about 700. Patients mostly psychotics with a few war neuroses and organic neurological cases, including brain injuries. It is worth mentioning that paresis accounts for only five percent of admissions as contrasted with 19% in civilian mental hospitals. Treatment was being carried out along the line of accepted principles. Careful records and statistics were being kept but there were no research projects worthy of note.

TOKYO ARMY MEDICAL COLLEGEBiologic Manufacturing Division

Director: Col Inouye

Due to destruction of the buildings, this section has moved its plants to Niigata and Kyoto. However, Col. Inouye and part of his staff remained in Tokyo.

Vaccines used in Japanese Army are: (innoculations are given as indicated below)

Typhoid, paratyphoid A, paratyphoid B - Mixed - routine

Smallpox - routine

Typhoid - Control measure in face of an outbreak

Paratyphoid A - Control measure in face of an outbreak

Paratyphoid B - Control measure in face of an outbreak

Cholera - Control measure in face of an outbreak

Plague - Control measure in face of an outbreak

Meningitis - Control measure in face of an outbreak

Typhus - Control measure in face of an outbreak

BCG - to all tuberculin negative soldiers

Tetanus - Toxoid in experimental stage

Gas Gangrene - Toxoid in experimental stage

Cholera strains used were three isolated recently from an outbreak in Shanghai. Plague cultures were isolated from four human cases in Burma and Manchuria.

The BCG immunization program has been in effect since 1942. Approximately 20-30% of all men joining the Army received BCG.

In 1945, the vaccines were prepared in a dry form to prolong their potency. They never came into practical use.

Vaccines were manufactured in Japan, Manchuria, North China, South China and Singapore.

Procedures employed in producing vaccines are attached.

Visits of the Niigata and Kyoto plants are anticipated.

*ENCLOSURE (A), continued*TOKYO ARMY MEDICAL COLLEGEParasitology Section

Dr. H. Osuzu

Very little research work has been done on parasitic disease. The following subjects were studied:

Filariosis: Treatment of cases of hematochyluria with colloidal antimony plus oral administration of picric acid. Good results reported.

Complement Fixation Reactions in Malaria: Specific antigens for P. Vivax, P. Malarial and P. Falicparun are prepared from the paasmodia obtained from human cases. Antigen prepared in an Na OH solution and left at ice box temperature - good for one week. Claim test is specific with no cross reactions.

Treatment of Malaria: Sheet attached.

These subjects are covered in "A new Book on Tropical Medicine", edited by Prof. Dr. Miyagawa, 1945, which is being forwarded under separate cover.

TOKYO ARMY MEDICAL COLLEGEPhysical and Chemical Laboratory

Director: Col. Goro Tatsui

Assistant: Major Yoshikaru Yamoshina

The laboratory equipment in general is very poor.

This laboratory is primarily a control lab for the Japanese Army. Routine tests are made on water, milk and all drugs and chemicals bought by the Army for their use.

Very little research is done.

The attached report indicates some syntheses attempted in the laboratory. None of this material has been tried clinically.

A copy of Japanese Army Pharmacopoeia will be forwarded under separate cover.

TOKYO ARMY MEDICAL COLLEGEPenicillin Research Committee

This committee was organized in February 1944 and its Direction appears to come from the Army Medical College. Outstanding Japanese scientists from many fields are associated with it.

The Nagao Institute did most of the original culture work. Where more than 1000 strains of P. Notatum were isolated, 11 of these were productive. Two strains (#233 and 176) have been utilized. Total commercial production was reputedly 1500 gms. of finished penicillin per month with smaller amounts produced in research laboratories and some crude local production in other places.



*ENCLOSURE (A), continued*

Commercial production is done in the Morinaga plant at Mishima (capacity 1000 gm. per month). The finished product is crude according to our standards.

Attached are photographs of the Mishima plant and a local translation of a report on research and production by Dr. H. Umezawa.

TOKYO ARMY MEDICAL COLLEGEManufacturing Division, Niigata

An alum precipitated polyvalent toxoid-containing *V. septique* Cl. histolytica, Cl. wolchii, Cl. noryii may have some merit. Report of this work in reprints to be submitted upon receipt by this committee.

Gas Gangrene Vaccine

The attached formulae was furnished this office by the Japanese in lieu of the original reports which have been sought but not secured.

Also attached is formulae for preparing Tetanus vaccine.

TOKYO ARMY MEDICAL COLLEGEDepartment of Pharmacology  
Col. G. TatsuiInsect Repellents

Worked on the production of D.D.T. Less than one kilo was prepared due to shortage of chlorine and benzene. It was found very effective against lice, but only sufficient quantity was available for experimental purposes.

Information of use of D.D.T. by the American Army, was obtained thru News Agency from Germany in August, 1944, when Germans discovered it was being used on the skin of war prisoners.

Prof. O. Kaburaki and Prof. H. Mori at the Agricultural Department of Imperial University, prepared a small amount (a few hundred grams) with which the Navy experimented.

The medical department employed pyrethrium as the main insecticide. Dorrin was not available to any great extent.

The repellents used were Lemon grass oil, Citronella and a mixture of Benzophenylene and Thymol, which were found very effective against mosquitos.

Paris green and a non-arsenic compound Ferric Arsen were used against mosquito larva.

Attached is a summary of research on Synthesis of D.D.T.

*ENCLOSURE (A), continued*TOKYO ARMY MEDICAL COLLEGEKanazawa Branch

Director: Dr. M. Yabe

The use of B.C.G. in the Army and the preparation of a better B.C.G. has been the prime duty of the above in his connection with the Army.

Reprints of data have been procured. Further data is to be submitted by mail. These items will be forwarded under separate cover.

TOKYO ARMY MEDICAL COLLEGEField Manuals

Manuals for distribution to Japanese medical officers, staff officers and enlisted personnel, dealing with the subjects listed below, have been collected and delivered to A.T.I.S., GHQ, AFPAC, for translation and forwarding:

1. Bacteriological examination methods for contagious diseases and for food poisoning.
2. Methods for inspecting meat.
3. Immunizations.
4. Field medicine.
5. Unit dental care handbook for medical officers.
6. Tropical hygiene and sanitation.
7. Psychiatric examinations.
8. Chemical Warfare detection methods.
9. Toxicologic examinations.
10. Sanitation and hygiene in cold areas.

TOKYO ARMY MEDICAL COLLEGEResearch Projects and Findings

Attached (see Enclosure (B) of this report) is a list of the research projects of the Japanese Army Medical College and an English summary of the findings.

Reference is made to the report on Wartime Research Commission, Section XXX.



*ENCLOSURE (A), continued*TOKYO ARMY MEDICAL COLLEGEOrganization of Japanese Army Medical Department

Attached (see Enclosure (C) of this report) is information from the CG, Japanese Army Medical College on:

1. Total number of doctors, scientists, nurses and other officers and enlisted personnel.
2. Total number of hospital, laboratories and other fixed and mobile units.
3. Distribution of medical personnel and units in Japan and in occupied areas.
4. Medical education, before and during war, in the Army.
5. Tables of organization and equipment and of medical units.
6. Lists of casualties during the war, with breakdown as to cause and effect.

and the curriculum of civilian medical schools before and during the war, for doctors, dentists and nurses.

Answers to questions 2, 3, and 4 are in the process of translation and will be forwarded under separate cover.

\* \* \*

IV. KEIO UNIVERSITY MEDICAL COLLEGE

Chemistry Department

Department of Parasitology

Anatomy Department

Journal of the Faculty

KEIO UNIVERSITY MEDICAL COLLEGEChemistry Department

Director: Dr. Yoji Sueyoshi

Main investigations carried out on Transformation of carbohydrates from fats, on coagulation of blood, and on Vitamin and nutrition studies.

Laboratories were destroyed during the war.

Attached are reprints of recent research work.

Importance of Linolic acid in Nutrition

*ENCLOSURE (A), continued*

C - Ajitaminuse

Transformation of Carbohydrate from fats

Blood Coagulation

Miscellaneous

KEIO UNIVERSITY MEDICAL COLLEGE

Department of Parasitology

Prof. Dr. T. Koizumi

Dr. Koizumi and associates have done most of their work for the past 14 years on the properties of the toxic substances of *Ascaris*. Subject covered were:

Ascariosis: Collected papers on this subject being forwarded under separate cover.

Provocative Measures in Malaria: It was stated that stivisan is very effective in bringing malaria parasites into the peripheral circulation. Much better than adrenalin.

Fever Therapy in Paretics: *Plasmodium ovale* utilized. Stated to be more effective than *P. vivax* or *P. malarial*. Also easier to control and to effect a cure of the malaria infection.

KEIO UNIVERSITY MEDICAL COLLEGE

Anatomy Department - "Okajimas Folia Anatomica Japonica"

The attached is a catalogue of the volumes of this journal published since April 1941.

Journals are being forwarded under separate cover.

KEIO UNIVERSITY MEDICAL COLLEGE

Journal of the Faculty - "Keio Igaku"

The attached is a catalog of the volumes of this journal published since December 1940 issue.

Publication was discontinued after the April 1943 issue.

The journals are being forwarded under separate cover.

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*ENCLOSURE (A), continued*V. OKUBA ARMY EXPERIMENTAL STATION

## General Information

## Medical Section

OKUBA ARMY EXPERIMENTAL STATIONGeneral Information

This is an Ordnance installation; however, it appears that ordnance was an overall Technical service to the Japanese.

This station is divided physically and by fields of work. For instance, #6 Section is CWS (Screened by CWS representatives), #7 Section is Medical. Its delegated function pertains to weapons relating to physics. The director is Major General Matsusaki (Medical). As a sideline Gen. Matsusaki was interested in increasing the individuals vigor and sensual acuity. It is reported by other Japanese that he accomplished little. Reference is made to Appendix "A", Section V.

#10 Section is Shipbuilding. There was a medical staff but it is reported that it accomplished nothing.

These are the only sections having medical groups.

Weapons pertaining to physics have been reported upon by the Scientific Intelligence Survey.

OKUBA ARMY EXPERIMENTAL STATIONMedical Section

Presentation of work by Surgeon Major General Matsusaki and staff. The only subject of interest was "Neocyamine".

This chemical is employed in photography as sensitizing agent to infra-red. The basic idea advanced by General Matsusaki et. al. is that if more infra-red rays can be brought into the body a beneficial effect will be produced. They have administered neocyamine to experimental animals and to approximately one million humans. It is claimed that the drug is beneficial in the treatment of frost bit, uninfected and infected wounds, carbuncles, erysipelas, pyemia, burns, tuberculosis, lymphademitis, and leprosy.

The drug is known here as Koha A (Neocyamine). Approximately 300 chemical derivatives have been prepared. Of these about 100 have been tested in animals. Koha A is reportedly non-toxic. The usual dose is one or two tablets by mouth daily or two cc (0.5 mg) of a solution intravenously.

A number of laboratory and clinical reports were submitted in support of the claims made. Most striking are the claims for the successful treatment of the leprosy. Among 371 lepers treated 81% were said to have shown evidence of improvement. A lengthy series of photographs to support the claim were presented.

Attached are reports in Japanese script concerning Koha A. Samples of the drug are forwarded under separate cover.

## ENCLOSURE (A), continued

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VI. KITASATO INSTITUTE FOR INFECTIOUS DISEASE, TOKYOKITASATO INSTITUTE FOR INFECTIOUS DISEASE, TOKYO

Director: Dr. T. Kitashima

Assistants: R. Kobayshi, Bacteriology; Y. Kusana, Preventive Medicine;  
K. Nagano, Parasitology; Y. Watanabe, Bacteriology1. Bacteriology

Principal research work has been done on Tuberculosis, Leprosy, Typhoid and Para Typhoid Fever, and Dysentery. Work on Tuberculosis has been chiefly differential studies on bovine, human and attenuated strains. Leprosy studies have been on the pathogenicity and transmission based upon Watanabe's "so-called" filterable rat strain. Typhoid and paratyphoid studies have been on prophylaxis, attenuate strains for vaccination and inoculation versus oral vaccination. Dysentery studies were on prophylaxis, oral vaccination, and differentiation.

2. Parasitology

Very little research has been done in the last 10 years.

Concerning schistosomiasis, the cow is the most important reservoir host and is more important than man in the transmission of *S. Japonicum*. Lime nitrogen has been found effective in the control of snails.

Concerning mosquito control, the breeding of *Aedes Albopictus* in pools in Tokyo Area has been controlled by means of a minnow *Oryzias Latipus*.

Attached is a list of studies published during the last five years.

Archives of the institute since 1940 will be forwarded under separate cover.

It appears that such eminence as this institute once had is rapidly fading into the past.

\* \* \*

VII. INSTITUTE OF PHYSICAL AND CHEMICAL RESEARCH

## Physiological Chemistry and Nutrition

INSTITUTE OF PHYSICAL AND CHEMICAL RESEARCHPhysiological Chemistry and Nutrition

Dr. Waro Nakahara

(From a report, Chemical Research carried out at the Institute of physical and Chemical Research, dated 25 September, 1945, of Scientific Intelligence Section GHQ, AFPAC.)



*ENCLOSURE (A), continued*

No military research was carried out.

Dr. Nakahara stated that he had discovered a new specific dietary requirement; a lactation factor made up of two constituents, one an adenylic acid compound and the other, peculiarly enough, or the amino benzoic acid.

Estimate by the interrogating officer was that Dr. Nakahara was a scientist of high order and truthful.

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### VIII. TOKYO MUNICIPAL HYGIENIC LABORATORY

#### **Bacteriological Laboratory**

#### TOKYO MUNICIPAL HYGIENIC LABORATORY

##### Bacteriological Laboratory

1. Hygenic laboratory and director Dr. Fusao Ishiwara, is a governmental and municipal institution serving public agencies, physicians, and private citizens.

It is divided into four sections - one for water analysis, an one for food analysis, another for clinical analysis including X-ray, and the other chemical analysis.

Production of biologics is limited to diptheria toxoid and dried plasma.

Laboratory appears to be in a "rundown" condition.

2. Bacteriological Laboratory, directed by Dr. S. Kanno, is a governmental and municipal institution which prepares biologics and conducts surveys. Typhoid, Typhoid Para Typhoid A and B, Cholera, and Dysentery vaccines were prepared. Surveys for carriers of Typhoid, Para Typhoid A and B, Dysentery, Cholera, Diptheria, Meningococci, and Plague were carried out.

Research work was unimportant.

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### IX. TOKYO NAVAL MEDICAL COLLEGE

#### **Organization**

#### **Preventive Medicine**

#### **Department of Pharmacy**

*ENCLOSURE (A), continued*TOKYO NAVAL MEDICAL COLLEGEOrganization

Director; Vice Admiral Y. Kanbayasi

Research Organ.

Kenkyubu in Naval Medical College was established in Autumn, 1943.

Object.

The study of the medical science and pharmacology which is necessary for the sanitation and hygiene of the navy.

Organization.Chief of research.

Surgeon Rear Admiral Osuka, Kanai, Yokokura.

Staff of general affairs.

Surgeon Commander Watanabe, Ota.

Departments.

<u>Section</u>	<u>Department Head</u>	<u>Number of members</u>
System of Education	Surgeon Capt. Yoshida, Murakama	3
Medicine	S. Cap. Kanai, Ariga	3
Surgery	S. Cap. Tomita	2
Oto-rhino-pharyngology	S. Cap. Nakamura, Yoshida	
Ophthalmology	S. Cap. Funakawa, Comm. Tanaka	
Dermatology	S. Comm. Nakauchi	
Roentogenology	S. Rear Adm. Yokokura, Comm. Norioka	
Bacteriology	S. Cap. Miyao, Arima, Kawai, Comm. Hatakeyama	6
Hygiene	S. Comm. Kiyohara, Toda, Nakamura	4
Pathology	S. Cap. Murakami, Comm. Ota	1
Pharmacology	S. Cap. Murahara	4

Plan of Study

At the beginning of the financial year each departmental head makes a plan over the thesis of the practical studies; viz:

Sanitation and hygiene of the Navy, Prevention and Treatment of sickness and wound, Prevention of gas casualties.

Publication of the result of studies.(1) Kenkyubuho, Med. Journal



*ENCLOSURE (A), continued*

- (2) Kaigun Gunikai Zasshi, Research record. It is claimed that records were destroyed.

The preceeding is extracted from a local translation.

Education in the Naval Medical College

1. Type of students

- (1) The surgeon education (I class - beginning course) six months. To educate young doctors, who graduated at a medical college in that year, basic naval medicine.
- (2) Education for chief surgeon (II class - junior course) six months. To educate the surgeon lieutenant, to become the chief surgeon of the naval ship.
- (3) Education of a special medical course. (III class - senior course) two years. To educate a medical officer as a specialist.

2. Research at the college.

- (1) The department of research was established in the August 1943. Naval sanitation and hygiene were studies.
- (2) Classification of the studies. Infectious disease and parasiton disease in the tropic, prevention and treatment of the tuberculosis, battle wound, airial hygiene and hygiene of the submarine were principal topics.
- (3) The results of Research. The results of these studies were published in the Kaigun Guniksi Zasshi.

The preceeding is extracted from a local translation.

TOKYO NAVAL MEDICAL COLLEGE

Preventive Medicine

Surgeon Rear Admiral S. Yokokura, Associate Chief of Research

(This report complements Appendix "A", Section IX of report covering period from 22 Sept. to 8 Oct. 45.)

Navy personnel received the following vaccines as indicated:

Typhoid, paratyphoid A, paratyphoid B - mixed  
Cholera  
Smallpox  
Diphtheria - anatoxin given to Schick positive young men  
BCG - to all tuberculin negative men  
Tetanus - not routine - used antitoxin  
Typhus - mouse lung preparation - not routine  
Meningitis - used as a control measure  
Dysentery - oral vaccine of little value, if any

The diseases regarded is most troublesome in the Navy were Meningitis and Dysentery. No satisfactory control method for Meningitis was followed; sul-fagumidine was of some use in the treatment of Dysentery.

*ENCLOSURE (A), continued*

Capt. Kawai denied any important research developments in the Navy Medical College during the war.

Attached are memoranda issued by the Japanese Navy Department for the control of contagious disease during the war. Of interest are the use of oral vaccine for Dysentery (admittedly ineffective) and the spread of epidemic typhus among naval personnel.

Under separate cover copies of the following are being forwarded:

- a. Instructions given to Japanese Navy Medical Officers for the control of contagious disease.
- b. Copies of research publications from the Naval Medical College for the years 1940 - 1945.

TOKYO NAVAL MEDICAL COLLEGEDepartment of Pharmacy

Dr. Ryozo Hayashi, Lt. Comdr., Acting Chief

Investigation of interest are:

The preparation of a sodium hypochlorite solution by electrolysis. Reprint attached.

Study of 2-Methoxy-6-chlor-9 (4-diethylamino-cyclohexyl-amino-acridin) as a substitute for atabrine in the treatment of Malaria. Reprint attached.

The preparation of drinking water from sea water by utilization of electric charge of synthetic resin "Orgacid".

At first Supply Depot (Naval Arsenal) work was accomplished in the use of pituitary gland extract from fish and cattle. Claims have been made that when this hormone is injected, it improves night vision. Reprint attached and sample of drug under separate cover.

Outline of training program in Pharmacy attached.

\* \* \*

X. TECHNICAL INTELLIGENCETECHNICAL INTELLIGENCE

(Accession list submitted in periodic reports)

\* \* \*



*ENCLOSURE (A), continued*XI. TOKYO INSTITUTE OF PUBLIC HEALTH

## Outline of Institute

"Myopic Problem"

Chemotherapeutic Institute, Ichikawa, Chiba

TOKYO INSTITUTE OF PUBLIC HEALTHOutline of Institute

Attached is a general outline of this Institute giving its history, physical installation, organization, staff, duties and responsibilities.

TOKYO INSTITUTE OF PUBLIC HEALTH"Myopic Problem"

Director: K. Nobechi

## Dr. Ishikawa, Tomoyoshi (Physiologist)

Member of Institute of Public Health within which is a "Committee for the study of the Myopic Problem" headed by Dr. Ishikawa. The committee was formed in 1939 to study five problems:

- I. Relation between myopia and constitution.
- II. Influence of poor lighting on development of myopia.
- III. Influence of general hygiene on myopia.
- IV. Hereditary factors in myopia.
- V. Nutritional factors in development of myopia.

Kondo, Tadao (died 1944) ophthalmologist did a great deal of work on the eye-sight problem. Much of his work was published and is in the attached journals and papers.

Ishikawa (above) studied the effect of the various type characters and has shown that square type is less fatiguing than the cursive type.

Attached are new Journals and Papers which deal with the problem.

TOKYO INSTITUTE OF PUBLIC HEALTHChemotherapeutic Institute, Ichikawa, Chiba

Director: Dr. Shuji Hasegawa

Secretary: Dr. Iwao Nishimura

Chief Attached Hospital: Dr. Seichi Arifuku

Outline of Activities of Institute is attached.

The curative and preventive properties of Cepharanthin are outlined in the attached summary. It is claimed that this drug is effective in the treatment of leprosy, whooping cough, as well as Tuberculosis. Recent work has indicated its value in the treatment of allergic conditions, particularly Asthma. A summary of this more present work is also attached. Under separate cover is a book on the experiments carried out at the Institute, as well as samples of the drug.

## ENCLOSURE (A), continued

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XII. NAGAO INSTITUTE, TOKYONAGAO INSTITUTE, TOKYO

Director: Dr. Komiami  
Chemist: Dr. Yabata  
Ass't. Chemist: Dr. Hatsuta  
Botanist: Dr. Kawamura  
Manager: Mr. Okabo

This is a commercially supported laboratory for maintaining fungus and yeast cultures for use in industrial fermentation processes. It appears to be modern.

Abstracts of methods and research since 1940 is attached.

Reference is made to Report Penicillin Research Committee attached to periodic report of 22 Sept. 45 to 8 Oct. 45 Appendix "A" Section III.

Attachments:

Report on NAGAO Institute.  
The View of NAGAO Institute.  
The stock cultures at NAGAO Institute.  
The sorbose fermentation (II) by T. NEHIRA, at the NAGAO Institute.  
The sorbose fermentation (I) by T. NEHIRA, at the NAGAO Institute.  
The extraction of Flavin (Vitamin B<sub>2</sub>) from Eleothesium.  
Ashbyii. R. OKABE, Y. HATSUTA, and 2. Veda, at the NAGAO Institute.

\* \* \*

XIII. CHIBA GOVERNMENT MEDICAL COLLEGECHIBA GOVERNMENT MEDICAL COLLEGE

Dean Koike

Staff Associated With University:

T. Seo, Prof. Surgery  
A. Minato, Prof. Pharmacological Chemistry  
K. Aiso, Prof. Hygiene  
K. Tanikawa, Prof. Hygiene  
K. Sato, Prof. Dermatology and Syphology  
Y. Ito, Prof. Ophthalmology  
S. Akamatsu, Prof. Biochemistry  
T. Takuma, Prof. Pediatrics  
H. Hazato, Prof. Bacteriology  
Y. Kagaya, Prof. Forensic Medicine

Research Projects Include:

Intra-arterial shock injection treatment by Seo, et al - sodium iodide, glucose, sulfonimide, sodium salicylate were injected in a variety of clinical diseases resulting in good reports. However, specific results are questionable.

*ENCLOSURE (A), continued*

Vitamin A extraction from subcutaneous fat of seals by MINATO yielding 180 International units per gram of fat. The liver contained only one third as much in contrast with whole liver.

Preservation of meat and fish with a culture of B. Butyrcus for one and one half years; however, the accompanying odors from the preserving agent has defeated the method for practical use.

Research on penicillin has been carried out by TANIKAWA in connection with the Penicillin Research Committee.

Reliable syphilis rates were secured from SATO which were higher than those in U.S. There has been no sensitivity to Atabrin encountered.

Research on Enzymes has been done by AKAMATSU.

Attachments:

Results on 70 cases of intra-arterial shock injection treatment (Reprint in Japanese and English Summary).  
Penicillin Study.

\* \* \*

XIV. NIIGATA GOVERNMENT MEDICAL COLLEGE

Cepharanthin

Pathology (and Parasitology) Department

Pathology Department

Department of Biochemistry

Clinical Division

NIIGATA GOVERNMENT MEDICAL COLLEGECepharanthin

Dr. Takashi Hashimoto (Dermatologist) - Dean of School

Extensive work was accomplished on the use of "Cepharanthin" in skin T.B., particularly Lupus vulgaris, with prolonged remission or apparent cures. No definite results determined in its use in chest T.B. "Cepharanthin" is an alkaloid of Wisteria Root grown in Formosa. It is manufactured by Kaken Seiyaku Mfg. Co., Tokyo, under the supervision of Prof. Hasegawa of Institute for Infectious diseases, Tokyo.

Reprint attached. Samples under separate cover.



*ENCLOSURE (A), continued*NIIGATA GOVERNMENT MEDICAL COLLEGEPathology (and Parasitology) DepartmentDr. T. Ito, Head of Department

Dr. Ito serves in the capacity of pathologist and parasitologist. No parasitological research work has been conducted by him in the past few years.

Clonorchiasis: A large Clonorchis area exists in Niigata prefecture but only a few clinical cases are now being seen. People are familiar with the infected fish and do not eat them.

Paragonimiasis: There are four rather restricted areas in Niigata prefecture, namely (1) Imar-mura (Higashi Kubiki district), (2) Ookambara-mura (Nakakambara district), (3) Nanatani-mura (Nakakambara district), (4) near Tokamachi (Nakauonuma district). Wet tissues of Paragonimus infected brain are being sent in under separate cover.

NIIGATA GOVERNMENT MEDICAL COLLEGEPathology DepartmentProf. T. Ito, PathologistProf. K. Akazaki, Pathologist

The department has been particularly interested in brain tumors and reticulum cell Sarcoma. Dr. Ito studied under Dr. Stevenson at New York Hospital until 1941.

Approximately 100 autopsies and 300-400 surgical specimens are examined each year. Of this material about one half is received from the Medical School Hospital and the remainder from outside sources. Approximately 1/4 of the cases examined at autopsy were tuberculosis and 1/4 psychiatric, during 1944. Tsutsugamachi fever is endemic in this area.

Publications were suspended in 1943 but prior papers and selected interesting autopsies were requested and will be submitted under separate cover.

NIIGATA GOVERNMENT MEDICAL COLLEGEDepartment of BiochemistryProf. N. Ariyama, Head of Department

No research work was done during war, but before the war the department had 10 to 12 assistants.

Prof. Ariyama spent two years at Washington University, St. Louis, studying with Dr. Shaffer and has been at his present post for 15 years.

Prof. Ariyama claims to have isolated a blood forming substance from bone marrow. The work was done before the war, has not yet been published, since the starting material, marrow, was not available in Japan in sufficient quantity during the war. From over 100 kg. of fresh marrow, about a gram of material was isolated. Experimental anemia, caused by bleeding in animals, is cured by a single injection of 0.1 mg. per kilo. He believes it stimulates the bone marrow.

*ENCLOSURE (A), continued*

The bone marrow is extracted by water of dilute alkali, and precipitated many times by alcohol and acetone, and color removed by bone black. The material, a white powder, is nitrogen free, produces reducing sugar on hydrolysis, part of which is fermentable, is dialyzable thru a semipermeable membrane and is thought to be a carbohydrate. It is non-toxic. Prof. Ariyama desires to repeat the isolation of the material and test its action on humans before publishing, as insufficient pure material is available at present to complete the determination of the chemical structure.

Attached is a summary of this work, prepared by Dr. Ariyama as a preliminary report for publication.

Ten reprints from the department, published since 1940, are attached.

Attachments:

- (1) Biochemical studies on d-Ribose, with special reference to the mechanism of Absorption of Sugars from Intestinal Tract.
- (2) Studies on N-Glycosides. Part II.
- (3) Studies on N-Glycosides. Part I.
- (4) Studies on Metabolism of  $\alpha$ -Ketonic Acids.
- (5) Studies on the Pasteur Reaction in Muscle.
- (6) *Über Einen Inhibitor der Glyoxalase.*
- (7) The Reactions of Sugars with Amino Acids under Mild Conditions.
- (8) Studies on Hydrolysis of Desoxyribo-Nucleotides and Nucleosides.
- (9) Precipitation of Nucleotides and Nucleosides with Salts of Heavy Metals.
- (10) Studies on Tumour Glycolysis.

NIIGATA GOVERNMENT MEDICAL COLLEGEClinical Division

## Department of Internal Medicine

Prof. I. Shibata

Investigated and published a report including the typing of pneumonia in Japan. (Reprint attached.)

Studied the daily Vitamin B requirements on Japanese prisoners of war. Findings agree with American workers. Summary attached.

Prof. Tasaka

Conducted extensive studies on body temperature including influence of environmental temperature on cardiac and respiratory activity, on skin temperature of extremities and reaction of the body to fever in various diseases.

Attached are summaries of unpublished work, on vitamin and temperature studies and the effect of acute hemorrhage on velocity of blood flow.

Department of Surgery - Prof. M. Nakata

Department of Radiology - Prof. S. Nosakio

No research work has been done in these departments.

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*ENCLOSURE (A), continued*XV. TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAI

Department of Pathology

Parasitology Department

Bacteriology

S. Osato

Institute of Tuberculosis and Leprosy

Institute of Tuberculosis and Leprosy (Investigation relating to Diabetes)

Clinical Division

Medico-Chemical Institute

Pharmacology

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIDepartment of Pathology

Dr. S. Nasu, Associate Prof. of Pathology

Dr. T. Hoshida, Prof. of Pathology (absent in Tokyo)

Dr. S. Matsuoka, Neuro-pathologist

Dr. S. Yatsuyanagi, Assistant

Dr. Hoshida has been active in experimental research related to chemical Carcinogens.

Special tissues including example of beri-beri heart was selected and will be forwarded under separate cover with department research project reports.

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIParasitology Department

Dr. S. Nasu, Parasitologist

Dr. S. Yotsuyanagi gives the lectures in parasitology at this school but was sick at the time. Dr. S. Nasu, a pathologist was interviewed. No parasitological research was being done at this school - only lectures to students.

Paragonimiasis: Three cases of paragonimiasis in this institution in three years.

Malaria: No malaria but five species of Anopheles in Niyaga prefecture.

Clonorchiasis: Twenty years ago there was an area a little north of Sendai in which there were numerous cases of clonorchis infection. Infections were obtained from a small variety of carp, known as Funa. People discontinued eating of this fish so that there are now practically no cases. Wet tissues on clonorchis cases are being sent in under separate cover.



*ENCLOSURE (A), continued*TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIBacteriology

Masahiko Kuroya, Prof. of Bacteriology

Working on the fractionation of *E. typhi*, by chemical means. Has isolated a polysaccharide toxic fraction. Antigenicity undetermined beyond precipitation tests. Possible purpose of work, in nature of other fractionating work done, to use fractions for immunogenic purposes. Working on fractionation of T.B. (This latter completely covered in U.S.)

Reprints of previous work are cataloged by title and will be forwarded under separate cover.

Working on isolation of *penicillium notatum* and preparation of penicillin.

Teaches Bacteriology in the University.

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIProf. S. Osato

Dr. Osato has only recently joined the staff of the Sendai School. Before this, he was working in the Kanazawa Medical College and all of his published research work will be obtained in the journals of this college when they are collected.

At present Dr. Osato is interested in the following:

1. Experimentally produced insomnia

Animals which are kept awake to the point of exhaustion and death, can be kept alive several days longer than usual by the administration of Vitamin B<sub>1</sub>.

2. The Effect of Hot Springs on the animal body

When experimental animals are exposed to natural hot springs, the reticulo-endothelial system of the subcutaneous tissues can be shown to have an increased phagocytic activity.

3. Treatment of Tuberculosis

Dr. Osato observed more than 100 tuberculous patients showing all types of pulmonary involvement who were treated with cepharanthin. In his opinion, the treatment was either of no benefit or was injurious.

He is now observing the effect of rhodinic acid on tuberculosis. This ten carbon chain acid comes from the bark of a tree commonly known as "Taiwan Shinoki" in Formosa. According to Dr. S. Katsura in Formosa the acid was effective in healing 20% of patients with open tuberculosis. Dr. Osato states that the preparation has some value in the treatment of tuberculosis. The drug is irritant to the gastric mucosa and is dispensed in cod liver oil or some aromatic oil to offset this effect. It is given in a dose of 2-3 cc by mouth, every day for six months or more.

*ENCLOSURE (A), continued*

A specimen of the commercially prepared drug was secured and is being forwarded under separate cover.

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIInstitute of Tuberculosis and Leprosy

Director: Dr. Taizo Kumagai (also Pres. of Univ.)

The Institute of Tuberculosis and Leprosy is housed in a new building donated by a private industry and completed in 1943. Although small, the Institute is modern in appearance and equipment. The staff, under Dr. Kumagai, is chiefly concerned with tuberculosis but leprosy is studied by Dr. Saburo Sato, whose work is mentioned below.

Dr. Kumagai discussed several salient features of the tuberculosis problem in Japan:

1. The peak death rate in Japan proper lies between the ages of 15 to 25. Formosans, however, have a tuberculosis mortality curve of the same character as that of Americans. Dr. Kumagai points out that Japanese eat less fat than any other people in the world. He offers the opinion that the tuberculosis death rate in Japan is a reflection of the dietary habits of the people and he stresses the need for a high fat diet in treatment.
2. Twenty five years ago the tuberculosis death rate among rich Japanese was two and one-half times that among the poverty stricken masses. At present this situation is completely reversed and is related to industrialization of the nation.
3. Cepharanthin administered to both tuberculous animals and humans was of no value in the treatment of the disease in the experience of the staff of the Institute.

Dr. Saburo Sato presented two findings of interest:

1. Koha A, referred to in a previous report under Okuba Experimental Station as a therapeutic agent for leprosy, was without value in the experience of Dr. Sato, who gave one milligram intravenously twice a week for six months to 60 lepers.
2. Dr. Sato had previously reported localized infections in chickens inoculated with leprosy bacilli. During the war Dr. Sato demonstrated that by repeatedly inoculating excised and emulsified leprotic nodules from humans into the breast muscles of a chicken, a generalized formation of nodules containing acid fast bacilli resulted in six months.

Reprints from the Institute are being forwarded under separate cover.

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIInstitute of Tuberculosis and Leprosy (Investigation relating to Diabetes)

Director: Dr. Taizo Kumagai

In addition to the work on tuberculosis and leprosy which he directed and which is described in another report, Dr. Kumagai is also interested in diabetes. He claims to have demonstrated the insulin effect of pancreas before



*ENCLOSURE (A), continued*

the work of Banting. He has since been interested in finding other substances which will lower the blood sugar level in diabetics.

This year Dr. Kumagai presented to the Tohoku Medical Association his finding on a chemical which he extracted with ether from the leaves of a plant specified as *Sathyrus palustris* L. var *macranthus* (white) Fernald. When this chemical is given by mouth to animals it lowers the blood sugar. Dr. Kumagai also gave it to 25 diabetics. In mild cases the blood sugar was lowered. In severe cases no effect was noted. A report was requested to be forwarded.

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIClinical Division

Y. Koga, Prof. of Radiology

Dr. Koga is well known in Japan for having developed the Japanese use of photoroentgenography in mass chest surveys. Most of his work in this field was done before the war, particularly in 1938.

During the war, his research activities were cut down considerably by a great reduction in the size of his staff.

His department has been working however, on research into:

1. Tissue culture methods
2. The effect of irradiation on tissue culture
3. Effect of irradiation on inflammatory lesions and on tumor cultures.

General Surgery

Prof. M. Muto, General Surgeon

Prof. A. Katsure, Neurosurgery

Clinical research has been done during the war. Dr. Muto has, together with his staff, worked on the surgery of Tuberculosis of the lung and on gastro intestinal operations for malignancy.

Prof. Katsure and his staff have been working on the surgical aspects of epilepsy. They have done many pre and post operative electro-encephalograms.

Prof. I. Miki, orthopedist, has been conducting clinical investigations of chronic shoulder disorders.

Reprints of all their papers since 1940 are being forwarded under separate cover.

However, none of the work seems important.

Medical Department

Dr. Toyojiro Kato, Prof. Emeritus of Medicine, 63, one of the leaders in Japanese medicine, retired in 1942 to direct the Institute of Aviation Medicine at Tohoku. Was founder of aviation medicine in Japan and has worked on the problems of aviation medicine for many years.

The work of the Institute was done in cooperation with the military authorities and financed by the government. They have been working on the usual problems, using animals (dogs and rabbits). They have a large pressure chamber and a centrifugal apparatus and numerous laboratories for the study of blood chemistry.



*ENCLOSURE (A), continued*

Their work has been published, with the exception of the most recent investigation in the Japanese Journal of Aviation Medicine, copies of which were obtained. (This info passed to ATIG.)

Dr. F. Kurokawa, Prof. of Internal Medicine, specializes in gastro-enterology, is one of the best workers in this field in Japan and has published a text book (1936) on X-ray diagnosis in gastro-enterology. Is now working on a study of the treatment of liver toxicities using levulose and Vitamin K. Has developed a micro method for liver glycogen determination.

Reprints of all his published work were obtained including a review of Japanese gastro-enterology, published in 1943, which will be forwarded under separate cover.

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIMedico-Chemical Institute

Director: Prof. H. Masamune

Extensive studies of biological activity and structure of carbohydrates and the glycoproteins.

More recent work on the isolation of a toxic glycidamine from human cancer tissue, which is also believed a product of normal tissue. Structure not yet completely determined. Summary attached.

Blood group substances have been isolated which are believed to be of carbohydrate nature related to chondridin. Attempts at the synthesis of blood group substances have been made. Summary attached.

Attached are reprints of recent work as well as a summary of his carbohydrate chemistry given in 1943 before the Japanese Chemical Society.

TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE, SENDAIPharmacology

Motoo Terasaka, Prof. of Pharmacology

Came to Sendai, March 1945, was previously Professor of Pharmacology at Nagasaki University of Medicine, where his research work was done.

Research work on Pharmacology of Uterine Action, Effect of digitalis on the heart, Pharmacology of Ephedrine, and Chemotherapy of (bird) Malaria, and a study of the action of diphtheria toxin.

Attached are 15 reprints of work published since 1941. (Suggest titles be translated and listed.)

## ENCLOSURE (A), continued

XVI. HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPORO

Bacteriology

Pharmacological Laboratory

Bacteriology and Immunology

Hygienic Laboratory

Clinical Division

Hot Springs Research Institute

Pathology Department

Biochemistry

HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPOROBacteriology

Yutaka Nakamura, Prof. of Bacteriology

Complement Fixation Reactions in Malaria

Tested 30 patients with induced *P. vivax* malaria. All cases were either positive or doubtful. Antigen prepared from human cells infected with *P. vivax*. Method of preparation being summarized and sent under separate cover.

HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPOROPharmacological Laboratory

Prof. Takeo Masaki, Head of Department

The following studies were conducted under his direction:

<u>Subjects of Investigation</u>	<u>Object</u>	<u>Duration</u>
1. Pharmacologic studies on Dihydrochavibetol.	To apply to medicinal purposes.	1943
A substance similar to Guaiacol and found less toxic than creosote. Prepared from <i>Cinnamomum Camphora</i> . Use: Abdominal disinfectant such as dyspepsia. Externally as skin disinfectant. No clinical study made, laboratory studies only on rabbits and mice, and frog. Action: Similar to guaiacol and less toxic. Incl: Reprints and sample.		
2. Skin irritant action of the principles of peppermint oil.	Rational use of peppermint oil as skin irritant.	1943
Incl: Reprint of studies.		

## ENCLOSURE (A), continued

<u>Subjects of Investigation</u>	<u>Object</u>	<u>Duration</u>
3. Skin irritant action of the volatile oils and their principles.	To study the relation between the physico-chemical properties and the skin irritant effects.	1943-1945
Result: The active principle of volatile oils causes the irritation. The more volatile an oil the more irritating. Physical properties include the melting points, solubility and volatility. Volatility is essential for the skin irritation action.		
4. The anthelmintic action of the principles of the peppermint oil, especially of menthol.	Valuation of peppermint oil as anthelmintic	1938-1943
Studies made on dogs, and cats found to be very effective. Found more effective than santonin. Large doses may be given and less toxic than santonin in large doses. Found 100% effective on Ascaris.		
5. Action of drugs on louse.	To study the mechanism of louse-killing action of drugs.	1944
Result: Essential Oils found effective, mixed with Boris Alba. This powder is found in Hokkaido. Talc may be used similarly. Boris Alba as a powder is found very porous, adding to its absorption properties.		
Use: Dusting powder.		
Incl: Reprint		
Sample: Lausan (Essential Oil-25% Naphthalene-25% Boris Alba-50%)		
6. Benzene-Naphthalene method, for the extermination of lice.	Exterminate lice.	1944
Naphthalene in Benzene 25% solution. Clothing sprayed and put in chest for 12 hours.		
Use: Spray. Most effective and convenient for use.		
Incl: Reprint		
7. Comparison of the louse-killing effects of various evaporable substances.	To study the relation between the physico-chemical properties and the louse killing effect.	1944-1945
Incl: Reprint.		
8. Pharmacologic studies on Lucidusculin, a principle of Aconitum Lusidusculum (Nakai)	To study its clinical applicability.	1940-1941
Study made on rabbits. No clinical studies.		
Use: As an anti-diuretic		
Incl: Reprint		



## ENCLOSURE (A), continued

- | Subjects of Investigation                                                                                                                          | Object                                                                                      | Duration  |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------|
| 9. Pharmacologic studies on the diuretic principles of Stigmata Maydis.                                                                            | Valuation of stigmata maydis as a diuretic.                                                 | 1942-1943 |
| Stigmata Maydis. is a powdered extract prepared from corn silk.<br>Use: Diuretic. Being used in Europe.<br>Incl: Reprint                           |                                                                                             |           |
| 10. The influence of quinine upon the function of reticulo-endothelial system.                                                                     | Research into the cause of the preventative effects of quinine on infection. (Respiratory)  | 1940-1942 |
| Small doses stimulates, large doses acts as a depressant.<br>Average dose: 0.003 - 0.103 mg/Kg per OS<br>Incl: Reprint                             |                                                                                             |           |
| 11. On the influence of the room temp. upon the quantity of urine in a whole day.                                                                  | To judge exactly the diuretic action of drugs on the rabbit. (Particularly Stigmata Maydis) | 1942      |
| High temp: Little diureses<br>Low temp: Increase in diuresis.<br>Constant temp: Necessary when studying action of diuretic drugs.<br>Incl: Reprint |                                                                                             |           |

## Inclosures: Reprints

1. Pharmakologische Studien Über Dihydrochavibetol.
2. Über die hautreizende Wirkung des Pfefferminzols.
3. Vergleichende untersuchungen über die pharmakologischen Eigenschaften einiger Anthelminthika und der zur Terpenreihe gehörenden Substanzen; sowie Wurmbabtreibungsversuche mittels Menthol an Hunden.
4. Action of various drugs on the louse.
5. Ueber eine neue "Benzol-Naphthalin" Methode zur Bekämpfung der Kleiderlaus.
6. Comparison of the louse-killing effects of the various evaporable substances.
7. Pharmacologic studies on Lucidusculin, a principle of aconitum lusidusculum (Nakai).
8. Pharmacologic studies on the diuretic principles of stigmata maydis.
9. The influence of quinine upon the function of reticuloendothelial system.
10. Study on the effect of room temperature upon the urine output in a day.
11. Manual on Drugs of Northern Japan (2).

HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPOROBacteriology and Immunology

Dr. Yutaka Nakamura, Prof. of Bacteriology and Immunology

Has visited the United States twice, most recently in 1922, at which time he visited in Boston and New Orleans, following studies on Yellow Fever, under Rockefeller sponsorship, in a Japanese Colony in South America.

## ENCLOSURE (A), continued

Primary interest is in Immunology and especially in Tissue Immunity (has the book of Kahn, "Tissue Immunity", but has not read same.)

Recent research on viruses diseases (vaccinia) and rickettsial diseases. Claims that by cataphoresis an antigenic immunogenic protein fraction can be obtained from vaccinia.

Claims that inoculation of blood of Tsutsugamushi patients testicularly into rabbits isolated virus which may be serially transferred, enhancing virulence. Has applied cataphoretic studies to some members of the Salmonellae group especially gaertner's bacillus and Sal enteritidis.

Is working on penicillin isolation of strains. A weak, impure product has been produced, experimentally.

Research in general hampered by a lack of animals.

Reports on work published in the journal of the university are to be forwarded separately.

HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPOROHygienic Laboratory

Dr. Zenjuro Inouye, Prof. of Hygiene

Dr. Inouye has been primarily interested in the physiological effects of air ions and has devoted much of the past 10 years to studying various phases of this problem. He has also been interested in the factors influencing the efficiency of the production of immunity by BCG Vaccine in guinea pigs. Some of his observations include the following:

A. That the efficiency of BCG in protecting guinea pigs against human tubercle bacilli subsequently inoculated, is reduced in the presence of:

1. Low temperature
2. High temperature
3. Low atmospheric pressure
4. Malnutrition
5. Low calcium intake
6. Vitamin B<sub>1</sub> deficiency
7. Vitamin C deficiency
8. Fatigue
9. Acidosis

B. That the efficiency of BCG is maintained or increased by:

1. Administration of Vitamin B<sub>1</sub>.
2. Exposure to an increased concentration of air ions for short periods daily.

C. That exposing factory workers to an increased concentration of air ions for short periods daily increases their efficiency and enhanced their recovery from fatigue.

A list of titles of research publications from the Hygienic Laboratory during the past five years is attached. A complete set of reprints has been furnished by Dr. Inouye and is being forwarded under separate cover.

ENCLOSURE (A), continued

HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPORO

Clinical Division

Surgical Department - Prof. S. Yanaji

A list of investigations is attached.

Psychiatry Department - Prof. T. Ishibashi

Some research work was done during the war on the Aborigine Aimu, who are susceptible to the peculiar hysterias of primitive peoples.

A list of publications is appended.

Pediatrics Department - Dr. K. Nagi

A list of publications is appended.

Medicine Department - Dr. S. Nakagawa

Experiment on the effect of cold on the bodies of man and animals, both in health and disease, have been conducted for the past 15 years without significant findings.

Serological test and chemical test for malignancy have been investigated for several years.

Also, test on liver function have been done.

A German drug, Benzylimidazolin, developed in 1941, a vagus stimulator, has been tested.

List of publication also attached.

Ophthalmology Department - Dr. Sadami Ochi

Principal work has been done on histopathologic studies of tracoma. Staining technique for inclusion bodies has been developed here. Procedure is described in the accompanying reprints.

HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPORO

Hot Springs Research Institute

Dr. S. Saeto, Medical Director

Experimental work was done on the effect of mineral waters on wound healing and also on intra-arterial injection of sterilized mineral water on diseases such as arthritis, and on acute and chronic infections. Good results were claimed.

Reprints will be forwarded under separate cover.



*ENCLOSURE (A), continued*HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPOROPathology Department

Dr. I. Ken, Prof. Emeritus  
Dr. K. Takeda, Prof. First Pathology Department  
Dr. H. Ambo, Prof. Second Pathology Department  
Dr. K. Shimpo, Assistant  
Dr. K. Omata, Assistant

Attached are reports of research projects undertaken by the two departments of pathology at Hokkaido Imperial University.

The high altitude studies will be reported in detail under separate cover.

Tissues and abstracts of research projects and routine autopsies will be forwarded under separate cover.

HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE, SAPPOROBiochemistry

Prof. Biochemistry Morio Yasuda, M.D., Ph. D. (Came to Sapporo in 1942)

Investigated metabolic and nutritional studies in connection with the Physical Culture Institute, Tokyo (Now closed).

Investigated the structure of phospholipids, particularly plasmalogen and amino acid cephalin derivatives. Recent reprints attached.

A summary of more recent studies of the structure of phospholipids as well as nutritional and metabolic studies of inhabitants of cold regions as attached.

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XVII. HOKKAIDO IMPERIAL UNIVERSITY, SAPPOROVeterinary Faculty

Departments of Agriculture and Science

Department of Agricultural Chemistry, Applied  
Mycology

Cryological Institute

HOKKAIDO IMPERIAL UNIVERSITY, SAPPOROVeterinary Faculty

Prof. K. Ichikawa - Chief of Veterinary Medicine

Dr. Ichikawa stated that Dr. Ono in Manchuria has developed a method of collecting Babesia parasites from blood. It is a sedimentation technic using calcium citrate (10%) solution. The infected cells rise to the top, are pi-

*ENCLOSURE (A), continued*

petted off and sedimented two or three more times. Dr. Ichikawa said that it might be utilized in the concentration of malaria parasites.

Dr. R. Kurosawa - Prof. of Obstetrical Veterinary Medicine

Has done considerable work on the diagnosis of pregnancy in the horse. Published papers are being sent in under separate cover.

Dr. S. Hamada - Bacteriologist in Veterinary Medicine

Has done considerable work on Salmonella infectious producing abortion in cattle produced by Trichomonas, but upon treating cows with washings of Mercurochrome and Mercuric chloride, or a 0.5% solution of Lysol, this was prevented.

Dr. C. Kohanawa - Hematologist

Dr. Kohanawa has done considerable work on infectious anemia in horses. He has also done hematological work on rabbits, cows and other animals.

Attached is a list of publications. Reprints are being forwarded under separate cover.

HOKKAIDO IMPERIAL UNIVERSITY, SAPPORO

Departments of Agriculture and Science

Prof. Agricultural Chemistry, Eigi Takahashi  
Ass't Prof. Nulo Ito

Investigations of nutrition of animals. No research was done during the war.

Prof. Biochemistry, Yukihiro Nakamura

Chemical and physical chemical studies of starches. Work published prior to 1940.

Department of Science

Prof. Organic Chemistry, Harusada Suginome

Isolated "Kobusin" a new alkaloid from aconite. A summary of more recent study of the structure of aconite alkaloids is attached.

HOKKAIDO IMPERIAL UNIVERSITY, SAPPORO

Department of Agricultural Chemistry, Applied Mycology

Dr. Jun Hanzawa - Prof. Applied Mycology (Retired)  
Dr. Y. Sasaki - Prof. Applied Mycology

Dr. Hanzawa, retired Prof. of Applied Mycology, after 39 years on the faculty, has worked mainly in the application of microorganisms to agriculture, industrial fermentations, and the preparation of fermented foods. (1) A fermented soybean food "Natto" widely used in Japan, is the result of his research. (2) The application of the flax retting principle (pectinase breakdown by microorganisms) to mulberry bark (waste from silk industry) to cotton

*ENCLOSURE (A), continued*

plant stalk and to Manchurian Phibiscus in the preparation of a strong durable fiber for gunny sack (burlap) production, is an outgrowth of his research. (3) During the war, glucose has been derived from potato starch for use in the work in the laboratory. (4) As in most other laboratories work on the isolation of *Penicillium metatum* and the preparation of Penicillin has been and is in progress. Attempted isolation of other molds with autibiotic capacities is underway.

The laboratory at the University is old and unkempt. As in most institutions reagents are lacking and the knowledge of research being done in the States is meager. Requests for information on Penicillin production are continually sought.

Dr. Y. Sasaki is now the Prof. of Applied Mycology carrying on the work reported above. He is a former student of Dr. Hanzawa. His present interest is in the classification of the mycodermas.

HOKKAIDO IMPERIAL UNIVERSITY, SAPPOROCryological Institute

Prof. N. Nakamura, Medical Director

Low temperature chambers capable of producing 25°C and 40°C temperature are in use.

Considerable emphasis was placed upon the studies begun in 1943 to alleviate frostbite. No practical applications were developed.

Rapid freezing of meat and vegetables is being studied at present.

Detailed abstracts and related reports will be submitted under separate cover.

A list of research projects undertaken during the past two years is attached.

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XVIII. MINISTRY OF HEALTH AND SOCIAL AFFAIRS, TOKYO

## Bureau of Hygiene and Sanitation

MINISTRY OF HEALTH AND SOCIAL AFFAIRS, TOKYO

## Bureau of Hygiene and Sanitation

The following officials of the Bureau of Hygiene and Sanitation were interviewed:

Dr. Maseyoshi Yamaguchi.....Division for Prevention  
Dr. Taizo Ashida of Chronic Diseases

Dr. Yushichi Minamizaki.....Chief of the Division for  
Prevention of Communicable  
Diseases

Dr. Yokiharu Miki.....Chief of the Division of  
Health



The Bureau of Hygiene and Sanitation according to these officials is an administrative organization whose relationship to research is one of cooperation and application. Thus, for research, the Division for Prevention of Chronic Diseases depends largely on the Tuberculosis Research Institute under Dr. H. Oka (reported separately); the Division for Prevention of Communicable Diseases depends on the Government Institute for Infectious Diseases (reported separately) and the Division of Health is chiefly concerned with problems of nutrition which are investigated by the National Nutrition Institute. A list of projects which were under investigation in this Institute have been reviewed by the committee chemist, who has indicated no further action is necessary.

### XIX. NATIONAL RESEARCH COUNCIL OF JAPAN

#### Projects

#### Reports on Projects

### NATIONAL RESEARCH COUNCIL OF JAPAN

#### Projects

Director: Dr. Haruo Hayashi

The Medical Section was Supervised by Dr. Y. Miyagawa

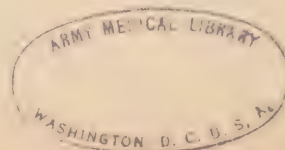
Funds are granted by the Bureau of Education to the National Research Council which receives and passes upon applications for financial support from investigators. Average yearly grants amount to 18 million yen of which 10 million was devoted to war work. Approximately four million yen went to medical and related research.

Completed reports up to 1943 are published in journals of the council with the exception of those investigations carried out for the Army and Navy. Results of work for the Army and Navy were not made known to the council.

A list of projects relating to medicine is attached.

Investigation of these projects is under way.

<u>SUBJECTS</u>	<u>RESEARCH AIM</u>	<u>NAME OF CHIEF RESEARCHER</u>
Flight medicine ¥260,000	Study of high altitude flying and diving for purpose of trying to increase ability to withstand these and to prevent dangers.	Kato, Toyojiro and 70 others. Tohoku Imp. U.
Underwater medicine ¥100,000	Study to improve living conditions in submarine and to increase operating efficiency.	Hisano, Nei and 15 others. Nagoya Imp. U.



## ENCLOSURE (A), continued

<u>SUBJECTS</u>	<u>RESEARCH AIM</u>	<u>NAME OF CHIEF RESEARCHER</u>
Ability to stand heat and acclimatization. ¥110,000	Study to promote working efficiency and to direct way of living by examining individual differences in ability to stand heat and suitability for life in tropics.	Hisano, Nei and 17 others.
Acclimatization to low temperature. ¥120,000	Study on method of protection against cold, precautions against frostbite and further to find a method of increasing ability to stand cold.	Toda, Masazo and 8 others. Kyoto Imp. U.
Nutrition in the tropics and in cold regions. ¥45,000	Study on selection of food stuff suitable for climate and on method of increasing production and of storage.	Toda, Masazo and 15 others. Kyoto Imp. U.
Physical power ¥30,000	Study on maintenance and promotion of physical power of people and on individual's suitability to various manual work.	Umamoto, Masazaburo and 30 others. Glofukai Med. Sch.
Sight strengthening. ¥54,000	Prevention of nearsightedness and strengthening of sight in daylight and night.	Shioji Yoshiji and 15 others. Tokyo Imp. U.
The health of infants. ¥50,000	Study on nutrition of infants in wartime, prevention of sickness, motherly care, method of keeping health of working women.	Kuriyama, Shigenobu and 24 others. Tokyo Imp. U.
Blood transfusion substitute. ¥180,000	Study of blood transrusion substitute medicine, method of storing of blood, method of blood transfusion.	Nakazumi, Masatoku and 12 others. Tokyo Imp. U.
Physical constitutions. ¥20,000	To study ability and change in ability to resist various diseases from standpoint of constitution and type of body.	Koiko, Kyuji and 23 others. Chiba Med. Col.
Hot Springs ¥38,000	To study effect of natural hot springs and to apply this in recovery from fatigue.	Misawa, Keigi and 11 others. Tokyo Imp. U.
Hormone Vitamins ¥60,000	Study of mechanism of action and method of use of (vitamin hormone).	Shimizu, Tayei and 17 others. Okayama Med. Col.

## ENCLOSURE (A), continued

<u>SUBJECTS</u>	<u>RESEARCH AIM</u>	<u>NAME OF CHIEF RESEARCHER</u>
Infectious cerebro-spinal meningitis ¥50,000	Various chemotherapeutic methods parallel use of inoculation serum, measures against carriers, and improvement of vaccine.	Miyakawa, Yoneji and 5 others. Tokyo Imp. U.
Digitalis ¥27,000	Submitted on report from 22 Sept. thru 8 Oct. 45.	Kobayashi and Ishidate Tokyo Imp. U.
Prevention of malaria and treatment. ¥60,000	Prevention of malaria, malarial mosquitoes, sanitary installations, treatment test of efficacy of new medicines.	Hayashi, Haruo
Preparation of anti-malarials ¥60,000	Synthesis of new anti-Malarial compounds.	Asahina, Haruhiko
Prevention of dengue fever and treatment ¥50,000	Culture of dengue parasite, animal inoculation method of diagnosis, experiment with human being.	Koizumi, Tan
Leprosy ¥50,000	Animal inoculation, culture of bacteria, now chemotherapy.	Ota, Masao
Breeding of small animals for experiments. ¥25,000	Finding best method for quickly increasing number of small animals for experiments.	Okada, Kaname and 9 others. Tokyo Imp. U.
Regulating mechanism in living body and its military application ¥40,000	Aim to create new type of equipment.	Aida, Tokusuke and 8 others. Tokyo Imp. U.
Emission Ray ¥120,000	Study on method of indirect X-ray photography, on its application to group examination for tuberculosis and on effects of various emission rays on living matters.	Nakazumi, Masatoku and 12 others. Tokyo Imp. U.
Tuberculosis ¥140,000	Study on inoculation against tuberculosis, improvement in method of treatment, and on problem of work for tuberculosis patients.	Imamura, Arao and 63 others. Osaka Imp. U.



## ENCLOSURE (A), continued

<u>SUBJECTS</u>	<u>RESEARCH AIM</u>	<u>NAME OF CHIEF RESEARCHER</u>
Filterable viruses ¥20,000	Study of influenza, small pox, trachoma.	Takeuchi, Matsujiro and 21 others. Osaka Imp. U.
Immunity ¥50,000	Study on inoculations against various infectious diseases, mass production of inoculation serums, methods of storage and use.	Tamiya, Takeo and 28 others. Tokyo Imp. U.
Fatigue ¥94,000	Study of nature, diagnostic method, prevention of and recovery from fatigue.	Katsunuma, Seizo and 36 others. Nagoya Imp. U.
Nutrition efficiency ¥78,000	Study on nutritional value of wartime food in Japan, Korea, Manchuria, and determination of minimum amount required for different professions.	Toda, Masazo and 13 others. Kyoto Imp. U.
Eruptive typhus ¥96,000	Study on inoculation against diagnosis extermination of eruptive typhus and also on problems concerning mass living sanitation.	Miyakawa, Yoneji and 20 others. Tokyo Imp. U.
Brain Waves ¥38,000	Study on picturization of brain wave and its application.	Katsunuma, Seizo and 11 others. Tokyo Imp. U.
Enzymes ¥40,000	Chemical research on various enzymes and quantity production of those which can be used to increase physical power and heat standing ability.	Kobu, Yashiro and 16 others. Osaka Imp. U.
Physical Standards for Japanese ¥40,000	Determination of physical Standards by measuring young and old male Japanese.	Nishi, Naruko and 24 others. Tokyo Imp. U.
Insects. ¥35,000	To make clear the cycle of diseases such as malaria and eruptive typhus which are carried by insects and to study prevention of these diseases.	Bokuzawa, Sanji and 13 others. Tohoku Imp. U.
Military horses and animals	Study on increasing production of military horses and other animals for military use and on their sanitation so that source of military horses in wartime can be maintained.	Emoto, Osamu and 14 others. Tokyo Imp. U.

*ENCLOSURE (A), continued*

<u>SUBJECTS</u>	<u>RESEARCH AIM</u>	<u>NAME OF CHIEF RESEARCHER</u>
Domestic animals and domestic fowls ¥44,000	To plan to increase number of best domestic animals and fowls by applying principles of heredity in present situation of insufficient feed.	Masui, Kiyoshi and 11 others. Tokyo Imp. U.
Parasites of domestics animals	To exterminate harmful parasites of domestic animals, to promote efficiency of military horses and general domestic animals.	Yoshimura, Ishiro and 5 others. Vet. College
Wartime food for health. ¥89,000	Treating of food stuff; rationalization of combination and cooking; preparing food from things not used as food but which are edible, making inedible substances edible; grains powdered food; country food stuffs; search and use of natural vitamin sources; effects of vitamin and others in a limited food supply.	Yabuta, Teijiro and 28 others. Tokyo Imp. U.
Electronic microscope. ¥30,000	To study to improve electronic microscope itself and to give basic assistance in solving various problems which require early solution.	Seto, Shozo and 8 others. Tokyo Imp. U.

NATIONAL RESEARCH COUNCIL OF JAPANReports on Projects

The following NRC projects have been turned over to other sections, as indicated, for investigation; since the subject indicated that the project would be of primary interest to that section.

1. Wartime Water Works and Sewage - To Office of Chief Engineer - Major Block.
2. Flight Medicine - To ATIG, FEAT - Capt. Castor.
3. Underwater Medicine - To NAVTECHJAP - Comdr. Ayres.

The following projects have been reviewed by the committee and it is considered that no further action is required. Many have been reported upon under the institute where the work was done.

1. Studies on the regulatory function in the animal body.
2. Factors influencing the growth and fermentation of microbes.
3. Nutrition Projects.

*ENCLOSURE (A), continued*

4. X-Ray indirect radiography.
5. Electro-encephalograms.
6. Balneotheraph.
7. Studies on Vitamins.
8. Substitution Method for Blood Transfusion.
9. Studies on Epidemic Cerebrospinal Meningitis.
10. Studies on Epidemic Typhus.
11. The metabolism and the action of Vitamins under hot temperature.
12. Section for the preparation of Anti-Malarial Remedies.
13. Chemotherapy of Tuberculosis.
14. Malnutrition.
15. Electron-Microscope.
16. Studies on Architectural Hygiene and Equipment.
17. X-rays.
18. Projects relating to Physical Strength.

Attached are reports from the Japanese on the above subject.

\* \* \*

XX. KANAZAWA GOVERNMENT MEDICAL COLLEGE

Biochemistry Department

Internal Medicine

Bacteriological Institute

Department of Pharmacy

Department of Pharmacology

KANAZAWA GOVERNMENT MEDICAL COLLEGE

Biochemistry Department

Prof. Ken Iwasaki

Investigated and developed gasometric methods for chemical analysis. Has particularly studied and developed methods for determination of urea, uric acid, creatinine, guanidine, etc. in blood. Has developed a gas measuring apparatus in which 10 micrograms of Nitrogen can be determined, forwarded under separate cover. He also studied methods for the determination of Iodine.



*ENCLOSURE (A), continued*

The laboratory was very well equipped and organized and the reviewer believes the quality of work to be good.

Attached are a list and reprints of the work of the department.

KANAZAWA GOVERNMENT MEDICAL COLLEGEInternal Medicine

Dr. M. Suzuki, Prof. of Internal Medicine

Considerable work has been done by Dr. Suzuki on chemotherapy in tuberculosis. A study is now in progress on the treatment of tuberculosis with oaminophenal. Of 60 patients treated, 10% showed a disappearance of the organism from sputa, urine, or gastric washings, and on x-ray examination, healing of the lesions.

This is a preliminary report.

No ill effects were reported in any of the patients up to this time.

Reprints of the work on tuberculosis will be forwarded under separate cover.

Reference is made to report on the Pharmacology department of this college.

KANAZAWA GOVERNMENT MEDICAL COLLEGEBacteriological Institute

Dr. Tani, Director of Bacteriological Institute

The main interest of the institute has been in spirochaetal studies. Efforts are being directed principally in all effort to culture T. pallidum in-vitro and to prepare a vaccine.

Seventy four reprints of the work in this Institute have been obtained. A translated listing of this work from 1940 to 1945 is attached. These articles are published in the faculty organ.

KANAZAWA GOVERNMENT MEDICAL COLLEGEDepartment of Pharmacy

Prof. Yoshio Sakurai

Investigated certain alkaloids and found one (Nupharidin) useful as a local anesthetic.

Attached are two reprints and a list of publications with titles which were published in the Tokyo Journal of Japanese Pharmaceutical Society (reprints were not available).

## ENCLOSURE (A), continued

KANAZAWA GOVERNMENT MEDICAL COLLEGEDepartment of Pharmacology

Director: Dr. N. Ishizaka

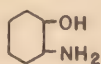
Investigated and synthesized new compounds for chemotherapy of pneumonia. Developed a compound (Decasulphone) which is claimed to be more effective against streptococcus pneumonia. Reprints attached, samples (2) under separate cover.

Tested numerous alkaloids and new synthetic compounds for treatment of bird malaria. Dirnethozy-8-diethylaminoethylamino-quinoline was found the most satisfactory (sample under separate cover). A list of compounds and summary of tests conducted are attached.

A list of papers from the department, with titles and reprints are attached.

Dr. H. Okamoto, Prof. of Pharmacology

A product o-aminophenol is being vivo (animal tests) - in human therapy attached digest of this work is self



used after in-vitro and in- in tuberculosis. The at- expanatory.

Samples of o-aminophenol and another product. Three-aminophen-oxazon - (2) have been procured. Also an ampule of the o-aminophenol in solution, as used in therapy, will be forwarded under separate cover.

Reprints on the work on o-aminophenol and on Prof. Okamoto's work on streptolysin will be forwarded under separate cover.

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XXI. KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGE

Leprosy Institute

Microbiology

Pharmaceutical Department

Department of Pharmacology

Research Projects

Tropical Diseases

Laboratorium for Chemical Research

## ENCLOSURE (A), continued

KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGELeprosy Institute

Director: Dr. Noboru Ogasawara

Studies were carried out on 10 patients in the institute, principally clinical work in relation to metabolism and leprosy. Some work is being done on the use of gold preparations. No direct microbiological work or work on transmission or animal inoculation is being done.

KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGEMicrobiology

Dr. Kimura, Microbiologist and Dean of School

Dr. Kimura is the pioneer in electronic microscopy in Japan, using an instrument which he constructed. His photographs of microorganisms are the equal of any done in the U.S.A. (Mudd). His most pertinent observations in this field are on the intracellular granular material of the paratyphoids - other gram negatives and on *C. diphtheriae*. The exact nature and importance of the bodies brought to light by the electronic microscope has not yet been observed elsewhere and is in corroboration with American and German work.

The other studies by Dr. Kimura include the following:

Fowl pest - The development of a formolized vaccine (virus) giving good immunity.

Experimental inoculation of dogs with bovine and human T.B. - Dog is resistant to former but susceptible to the latter. The dog, as a possible carrier, is indicated.

Differentiation of human and bovine T.B. - By chick embryo inoculation. Embryo more susceptible to the bovine strains.

Dengue fever - Cultivation of virus on chick embryo and in mouse brain. A mouse brain vaccine showing good protection in animals prepared.

Endemic typhus - Attempted animal infection intranasally, in open wounds, and on the conjunctiva. Resultant infection by any of these routes successfully done.

Two unpublished manuscripts on endemic typhus were picked up by Lt. Col. Sanders, CWS, Further data on this work could not be obtained.

Bang's disease (Undulant fever) - Serum of dairy workers (Kyoto) showed two of 116 men with agglutinin titer one to 100. Of 29 cows tested, 11 gave positive reactions (reactors).

Analysis of toxin by peptic and other enzyme digestion. A study on the nature of toxin. (Chemical)

Immunological Properties of Cultured Leishmania donovani.

Four rabbits were inoculated with killed (by heat) leptomanas forms of *L. donovani*. In the serum of these rabbits were found agglutinating substances, precipitins, complement-fixing antibodies and anaphylactic antibodies. All of these various reactions were said to be strain specific - could tell the difference between two strains of *L. donovani*.



ENCLOSURE (A), continuedSkin Reactions for the Diagnosis of Kala-Azar

Antigen prepared from cultivated leptomonas forms. Injected 0.1 cc intradermally. Tested 16 Japanese soldiers infected with *L. donovani* and obtained positive results in all. The height of the reaction was from 12 to 24 hours. Some positive reactions were as much as 55 mm in diameter. Four controls were negative. About 30 cases of leishmaniasis in Japanese soldiers in Kyoto Hospital and many more in Himeji Hospital, near Kobe. All soldiers were from North China.

Chemotherapy of Kala-Azar with Five Antimony Preparations.

He found that all five drugs would cure striped squirrels infected with *L. donovani*. In vitro and toxicity studies were conducted. These drugs were also injected into a normal animal and then an emulsion of livers infected with *L. donovani* was inoculated intraperitoneally. All drugs prevented the squirrels from acquiring leishmaniasis. All controls contracted the disease.

Injection of *L. Donovanii* into Rabbit Testicles.

Dr. Kimura injected leishmania and leptomas forms into the testicles of rabbits. In some animals the leishmania could be found in the liver, spleen and bone marrow but could always be found in the testicle.

Reprints of the above publications are attached.

KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGEPharmaceutical Department  
Torizo Takahashi

Synthesized numerous sulfur-pyridine containing compounds, list of compounds, as well as reprints are attached.

KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGEDepartment of Pharmacology  
Prof. Kikuo Ogin  
Ass't. Prof. H. Yamazaki  
Takeka Seki, Assistant

Investigated many compounds (list attached) for treatment of bird malaria. All were found less effective than atabrine with the exception of two methyl-mercapto six chlor - 9 - (diethylamino pentylamino) pyridino 3'2' : 2:3 quinoline chlor hydrate which was better than atabrine. Method of preparation attached, sample under separate cover.

Investigate an antimony compound (antimonyl hexonate) prepared by Prof. Nakai at the National Chemical Institute, Tskatsuki. Method of preparation attached and samples under separate cover.

It was found very effective in treatment of 10 human cases of Kala-azar (reprints attached) and has also been recently found of decided value in 30 human cases of Schistosomiasis. The compound is relatively non-toxic, given in a course of 25 to 50 intravenous injections of 0.5 to 0.6 gm. Lethal dose for 10 gm. mouse is 40 gm.

*ENCLOSURE (A), continued*

Investigated certain antipyretics and one was synthesized with properties similar to morphine.

Three reprints attached. Attached is a list of 63 publications with attached reprints.

KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGEResearch Projects

Attached is the report of the research projects in medicine that have been pursued by the members of the staff since 1940.

Reprints of the articles which appeared to be of most interest are being forwarded under separate cover. Specific reports on most pertinent projects are submitted under separate title.

KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGETropical Diseases

Dr. S. Yamaguchi, Prof. in Department of Science

Dr. Yamaguchi was a Captain in the Japanese Navy. From August 1943 to December 1944, he was doing research work in the Macassar Navy Institute for Tropical Disease in Macassar, Celebes.

Malaria

Most of his work was done on experimental bird malaria. He worked on the theory that a lowered oxygen tension, in the circulating blood, might help destroy the malaria parasites. Ten birds infected with a species of malaria (probably *Plasmodium praecox*) were first injected with quinine, then put in a glass dessicator and the air evacuated. They were kept at this negative pressure for 30 minutes. The treatment of birds in this manner was found more effective than by the simple administration of quinine.

During the past five years, he has published many papers on the parasites of fish and other animals.

Reprints are being sent under separate cover.

KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGELaboratorium for Chemical Research

Director: Prof. S. Uchijino

Prof. Uchijino, until 1942, was Director of Medical Chemical Institute, Imperial University, Sendai, and came to Kyoto in 1942.

Extensive investigations were carried out on digestive proteolytic enzymes. Enzymes from the kidney and liver of whales were recently studied.

Attached are 44 reprints covering work done at Sendai and Kyoto since 1940.

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## ENCLOSURE (A), continued

XXII. KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Bacteriology Department

Hygiene Department

Orthopedic Surgery

Pharmacology

Pathology Department

Public Health Department

Clinical Division

KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Bacteriology Department

Dr. Tadao Toda, Prof. of Bacteriology and Protozoology

Dr. Toda and his assistants have carried on an extensive research program during the war. Reprints of publications of the Department are being forwarded under separate cover. Among the problems studied are included the following:

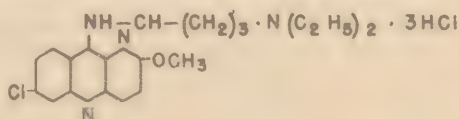
1. BCG immunization - Dr. Toda claims to be the first to have used BCG immunization in Japan. He is the author of a monograph on the vaccine. He is in complete agreement with all other investigators in claiming marked reduction of tuberculosis morbidity and mortality among immunized individuals. His laboratory is the production center of BCG for use in Kyushu.

2. Leprosy - all attempts at cultivation of or animal infection with human leprosy bacilli failed.

3. Dengue - while the primary objective of Dr. Toda's studies on dengue was to determine size of the virus, the interesting point is that he claims to have grown the virus on the chorioallantoic membrane of the developing chick embryo.

A specimen of this virus in dried human blood, preserved in the frozen state since 1943, was infective to humans in 1945. A sample of the dried blood has been secured for forwarding under separate cover.

4. Chemotherapy of malaria - experimental antimalarial compounds were received from Prof. Takahashi of the Kyoto Imperial University for study. Among the group of compounds studied, one was regarded as having merit:



7 chlor 6 methoxy - 4 - (diethylamino 5 - penty - amino) -  
 (pyridino - 3' - 2' = 2 - 3 chinolin) chlorhydrat



*ENCLOSURE (A), continued*

5. Penicillin - an experimental product was obtained which was therapeutically effective but produced reactions. No commercial production of penicillin was undertaken.

No investigations of influenza, typhus or encephalitis were undertaken during the war.

KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Hygiene Department

Dr. Kiomi Atsubo, Prof. of Hygiene (and Parasitology)

Dr. Atsubo has interested himself in climatology but also has sponsored some research on the identification and distribution of helminths.

Reprints of publications of the Department of Hygiene are being forwarded under separate cover.

KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Orthopedic Surgery

S. Jirinaka, Dean of the Medical School and Prof. of Orthopedic Surgery

"Prosthetic Limb Studies"

1. This department was asked early in the war to make researches into the problem of limb prosthesis and much work has been done along this line. The whole problem has been reviewed and the mechanics of various types of artificial limbs have been improved. Several new upper limb attachments have been devised to assist the crippled farmer in his occupations.

Three papers are appended.

2. Many studies have been conducted on the handling of traumatic amputations and joint injuries. Studies on the case of histamin and choline injected locally to prevent ankylosis and also on the use of fascia lata to prevent joint ankylosis have been made.

3. Much work has been done on the prevention of infection in traumatic joints and in compound fractures. He has developed no new techniques on ajusive procedure.

4. The professor has just started a study on the effect of the atomic bomb on bone growth in children. The bone tissue from autopsies is being studied.

KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Pharmacology

Dr. Tokushi Fukuda, Prof. of Pharmacology

Research was conducted in three phases:

1st Phase: Digitalis and digitalis-like substances. Extensive studies were made on *Nerium Odorum*, habitat: South Asia, a powdered extract was prepared and experiments conducted in frogs and

*ENCLOSURE (A), continued*

rabbits. Action is the same as digitalis and found less toxic.

Reprint attached.

2nd Phase: Pharmacology and Physiology of heart and blood vessels.  
Study of no significance.

Reprint attached.

3rd Phase: Toxicological study of Globe fish (Japanese). A toxic substance known as "Tetradotoxin" was found in liver and ovary of fish and sometimes in the skin. Muscle of fish not poisonous.

Reprint attached.

KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Pathology Department

Dr. Tamaki Imai, Ass't. Prof. of Pathology  
(Substitute for Dr. Kosaku Ono, Prof. of Pathology and Dr. Yukizo Ono,  
Emeritus Prof. of Pathology)

Dr. Imai, who will succeed Dr. Yukizo Ono as Professor of Pathology, discussed the work of the Department as follows:

1. Dr. Ono has spent many years studying the lymphatic system. His studies have been concerned chiefly with anatomy and physiology, the blood supply of the spleen, the etiology of splenomegaly and the pathogenesis of tuberculous lymphadenitis.

2. Dr. Ono has studied the problem of jaundice for 20 years. He is responsible for the unitarism theory of icterus which implies that jaundice does not occur in the absence of liver pathology.

3. The autopsies performed on atomic bomb patients (24 total) are being reported to Colonel Oughterson, of the Atom Bomb Commission.

Reprints have been requested for forwarding under separate cover.

KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Public Health Department

Dr. Haruo Mizushima, Prof. of Public Health

Dr. Mizushima, who holds a degree of Doctor of Public Health from Johns Hopkins University, has devoted most of his research to population problems in Japan, Korea, Manchuria, and Mongolia. He has reported on population increases in cities and rural areas, and has developed life tables for Japanese, Koreans, and Manchurians. In addition Dr. Mizushima has sponsored research in industrial hygiene, Vitamin C content of foods, purification of water by the oligodynamic action of silver, construction of houses for maximum comfort, effects of ultraviolet irradiation, effect of high temperature on the development of tuberculosis, effect of low pressure on the development of tuberculo-

*ENCLOSURE (A), continued*

sis, bacteria which utilize carbon monoxide and the influence of fluorine in water on mottling of teeth in Koreans.

Reprints of publications are being forwarded under separate cover.

KYUSHU IMPERIAL UNIVERSITY  
Faculty of Medicine

Clinical Division

I. Y. Nakashima, Prof. of Radiology and Director of the University Hospital

This is an active department and the professor has an excellent staff including Dr. K. Inouye (now K. Ishikawa) an international authority on the biological effects of irradiation.

The most important work of this department has been done quite recently on the Nagasaki atomic bomb study. This work is nearly completed and is to be published in the very near future. The department has been and will continue to cooperate with the Atomic Bomb Commission.

The department is completely German in training and viewpoint and much work has been done on the roentgen treatment of tuberculosis and gastric ulcer.

A study has also been conducted on the treatment of hypertension with negative ions.

Reprints are appended.

II. S. Tamura, Prof. of Ophthalmology  
H. Ikui, Ass't. Prof. of Ophthalmology

1. The department sees about 1000 cases of tuberculosis of the eye a year and has much work on the disease. Studies have been conducted on the diagnosis, therapy and on the histopathology of ocular tuberculosis. A specially prepared fraction of Old Tuberculin and x-ray are used in their treatment which they claim is efficacious.

2. They have also been studying the problem of myopia. They have been making a comparative study of the effect of treatment by the use of convex lens and atropine installation.

In advanced, severe cases operative removal of the lens is employed.

3. They have made an extensive study of the clinical and histopathological aspects of trachoma.

4. They have worked in conjunction with the department of surgery on the ophthalmological aspects and complications of neurosurgery.

Reprints are appended.

III. Dr. T. Mitsuya, Prof. of Urology

A large part of the work of this department, together with the apparatus used, was lost in the bombing and burning of the urological laboratory.



*ENCLOSURE (A), continued*

They have made a study of the normal physiology of the urinary tract using x-ray cinematographic methods. Peristaltic movements of the kidney, pelvis, ureters and bladder were studied.

Reprints were requested for forwarding under separate cover.

IV. Dr. F. Ishiyama, Prof. of Surgery

The professor has the reputation of being one of the best surgeons in Japan. He is carrying on the work of his deceased predecessor, Prof. H. Miyaki, on gall stones. He has collected stones from Japanese living in China, Formosa, Korea and other parts of the world in an attempt to explain the high incidence of bilirubin stones in Japanese.

The professor has studied the composition of gall stones, using microscopic, clinical, spectrographic and x-ray diffraction methods. He feels that the figures given in text books and in the literature for the incidence of various types of gall stones will have to be revised in the light of his researches. He feels that all the various analytical methods must be employed to determine the true make up of the calculus.

He is now applying his methods to the analysis of urinary stones.

His paper on X-ray crystallography is appended.

2. His department has used the Fuch's, Kurten and Sakai methods of diagnosis in early gastric carcinomas. In their hands the tests are about 82% accurate and are falsely positive in about 15%.

3. Ishiyama has done over 500 gastric resections for cancer and does not hesitate to take the hepatic artery if he feels it is necessary. He has done this in about 10 cases and has been successful in all. They have shown by animal experimentation, that the liver blood supply is readily taken over by the gastrophaticoduodenal artery.

4. He has done 40 frontal lobectomies in epileptics with discouraging results. He has resected the bronchial ganglia in 60 cases of asthma with mediocre results.

His paper on post-operative pulmonary complications is appended.

V. Dr. Shigeru Umayahara, Prof. of Obstetrics and Gynecology

The Department of Obstetrics and Gynecology has investigated such problems as blood supply of the embryo, liver function in toxemia of pregnancy, action of various hormones, roentgen pelvimetry, physical measurements of the newborn, insufflation tests for tubal patency, Vitamin C excretion and sodium taurocholate as a treatment for sepsis.

Reprints of publications are being forwarded under separate cover.

VI. Dr. G. Kusunaki, Prof. of Internal Medicine

The department of medicine of this university has an excellent reputation in Japan and is active in experimental and clinical research.

1. Studies have been conducted on the autonomic nervous system using the microtoxic and section method.

## ENCLOSURE (A), continued

By this method a small area in the ventral part of the pons has been shown to be the center for tonic control of the intestine and the spinal cord and peripheral paths have been worked out. Reprints are attached.

2. Studies have been and substance are now being conducted on the effect of gastric and duodenal and human saliva and serum on polycythemia and pernicious anemia in the white rat. These studies have not been completed and have not been published.

3. They have shown that the use of gastric and duodenal substance in conjunction with typhoid vaccine causes a marked increase in the production of immune bodies and a higher titer is obtained than results from the use of the vaccine alone.

A reprint of their paper on this reaction is appended.

4. The staff has conducted much experimental and clinical research on the problem of bronchial asthma. Many reprints on this problem are attached.

They have used fever therapy and insulin shock therapy with claimed excellent results.

VII. Dr. M. Sasaki, Prof. of E-N-T.

The professor has published numerous papers on his method of tonsillectomy, on the clinical problem of tonsillitis, and on the removal of foreign bodies in the bronchial tree.

Reprints are appended.

VIII. T. Takeda, Prof. of Roentgenology

The only study conducted in this department recently has been one on the use of X-Ray therapy in the treatment of leprosy. Good results have been claimed for the maculous form of the disease. The results in the nodular form of the disease. The results in the nodular form of the disease are not good.

Reprints will be forwarded under separate cover.

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XXIII. NAGOYA IMPERIAL UNIVERSITY  
Faculty of Medicine

Anatomy Department

Bacteriology Department

Hygiene Department

Pharmacology Department

Pathology and Parasitology

Department of Pediatrics

*ENCLOSURE (A), continued*

## Supplement to Section IX

## Clinical Division

## Comments on Medical Education

NAGOYA IMPERIAL UNIVERSITY  
Faculty of MedicineAnatomy DepartmentC. Togari, Prof. of Histology and Embryology

The department has made many investigations in the histology and histogenesis of various organs in rodents.

Similar studies have been conducted on the sweat glands of the human axilla and on the nasal mucous membrane of man.

Reprints will be submitted under separate cover.

Dr. K. Yamado, Prof. of Anatomy (Micro)

The professor has been interested in the variations and anatomical abnormalities of trunk muscles of man, particularly of the levator scapulae. He has made exhaustive studies.

Reprints will be submitted under separate cover.

Dr. H. Nagamatsu, Prof. of Anatomy (gross)

The professor is conducting, in conjunction with all Japanese anatomists, a comprehensive study of the Japanese body types.

This work has not been published.

NAGOYA IMPERIAL UNIVERSITY  
Faculty of MedicineBacteriology Department

Dr. Kazuo Ogasawara, Ass't. Prof. of Bacteriology (Substitute for Dr. Mitsuzo Tsurumi, Prof. of Bacteriology)

During the war the Department of Bacteriology concerned itself with studies of the influenza virus. English, American and Japanese strains available for study were all type A. The few sporadic outbreaks of influenza in Japan during the war were identified by neutralization tests with patients sera as also due to type A virus.

Experimentally, four types of influenza vaccine were prepared:

1. Emulsion of infected mouse lung tissue.
2. Tissue culture.
3. "Purified" suspensions of virus from mouse lung tissue.
4. Chick embryo preparations.



*ENCLOSURE (A), continued*

The first of these caused severe reactions in humans; the second was less drastic in its effect; the third was most acceptable to recipients. None was produced on a large scale and none was properly evaluated because there were no extensive outbreaks of the disease.

In addition to the above, studies were made of the feasibility of using the Manchurian hamster (*Citellus mongolicus*) as an experimental animal for Japanese encephalitis virus. It was found that the virus survived only three to four intracranial passages.

According to Dr. Ogasawara, no Japanese encephalitis virus vaccine was produced in Japan for control purposes.

The entire bacteriological laboratory and all equipment, data and cultures were destroyed during the first bombing attack on Nagoya.

NAGOYA IMPERIAL UNIVERSITY  
Faculty of Medicine

Hygiene Department

Dr. Bogo Koinuma, Prof. of Hygiene

During the war Dr. Koinuma studied the problem of industrial dusts. He tested a variety of face masks and decided that a mask consisting of fine layers of "habutai" grade silk was most feasible for production in Japan. This mask, however, did not come into commercial production.

In addition to silicosis occurring in coal and copper miners, foundry workers and sand blasters, Dr. Koinuma also listed dermatitis, carbon monoxide poisoning and pneumoconiosis in people grinding duraluminum as common industrial health problems. In addition, tuberculosis was reportedly common in the last named group.

According to Dr. Koinuma, the protective creams used as preventives against dermatitis were of the cosmetic type and non specific in their effect. In addition, Japanese laborers were reluctant to wear proper respirators as a protection against dusts. Ventilation equipment to remove both dusts and other atmospheric contaminants were limited in use because of a lack of material.

NAGOYA IMPERIAL UNIVERSITY  
Faculty of Medicine

Pharmacology Department

Dr. Makoto Miwa, Prof. Pharmacology

Research carried on over period 1940 to 1945.

1. Action of Adrenalin on the secretion of the stomach.

Conclusion: Adrenalin does not directly increase secretion of the stomach, but stimulates activity of the stomach, which in turn stimulates secretions.

2. Effects of oxygen and air on movement of intestines.

*ENCLOSURE (A), continued*

Conclusion: When oxygen content is reduced to nine percent, a marked decrease is noted in movement of intestines, from 20% to nine percent reduction. No change is noted.

3. Effect of acid on secretion of suprarenal glands.

Conclusion: Injection of five cc. one percent Hcl. showed an increase in secretion.

4. Action of caffeine as a heart stimulant.

Conclusion: Caffeine stimulates heart by direct stimulation and not by increasing circulation of blood. This was proven by keeping blood pressure and rate of circulation constant. Blood pressure was held constant by withdrawing blood as circulation increased. Circulation of blood was held constant by withdrawing blood as blood pressure increased.

NAGOYA IMPERIAL UNIVERSITY  
Faculty of Medicine

Pathology and Parasitology

Dr. Fukuzo Oshima, Prof. of Pathology and Parasitology

Dr. Oshima has devoted many years to the study of the distribution, pathology and epidemiology of clonorchis sinensis, metagonimus yokagawai and Dibothriocephalus latum infections. All three parasites are endemic in the prefectures surrounding Nagoya due to the native custom of eating raw or partially cooked fish. Since there are no satisfactory therapeutic measures, the only practical procedure at present is to educate the people to cook fish before eating. A reprint outlining some of this work is attached.

During the war Dr. Oshima also studied the pathology in soldiers who died of malaria. Reprints of this work are attached.

Before the war Dr. Oshima was studying carcinomas but was forced to discontinue the work due to lack of supplies. At present he is interested in the etiology and transmission of chicken sarcoma.

NAGOYA IMPERIAL UNIVERSITY  
Faculty of Medicine

Department of Pediatrics

Dr. Kyoichi Nakae, Ass't. Prof. of Pediatrics (Substitute for Dr. Okira Sakamoto, Prof. of Pediatrics)

"EKIRI"

During the war the Department of Pediatrics was largely concerned with the study of "ekiri" (diarrhea in young children). The studies conducted by the staff show that the disease is prevalent in children between the ages of two and seven. Untreated patients have a 44% mortality rate. Death appears to be due to cardiovascular collapse. Experimental observations seemed to show that intravenous saline and glucose combined with the administration of strophanthin was the therapeutic procedure of choice.

*ENCLOSURE (A), continued*

The disease apparently is due to a variety of bacterial etiologic agents. A reprint is attached which describes the experimental observations made including etiology and therapy.

NAGOYA IMPERIAL UNIVERSITY  
Faculty of Medicine

Supplement to Section IX

Dr. M. Nakashima, Prof Ophthalmology  
Dr. R. Hagino, Ass't. Prof. Ophthalmology

Work was accomplished on the use of Posterior Lobe of Anterior Pituitary Gland, where a Melanophalen Hormone was extracted and used in night blindness. This hormone was extracted from fish and prepared by Aoyama Institute, Tokyo (Commercial Pharmaceutical house).

Dose: One cc, became effective after two hours and duration was about 24 hours.

Results: Night vision was improved, especially objects on the horizon.

Fish glands were used only because of the supply.

NAGOYA IMPERIAL UNIVERSITY  
Faculty of Medicine

Clinical Division

I. Dr. U. Kikukawa, Prof. of Obstetrics and Gynecology

This is a busy clinical department and they have been conducting several clinical and experimental studies in the last five years:

1. A study of tuberculosis in pregnancy.
2. A clinical investigation of malignant chorionepitheloma.
3. An extensive study of foetal bone ossification.
4. A study of placenta praevia, particularly its X-ray diagnosis.
5. The use of laparoscopy in AZ tests.
6. A study of so-called foetal respirations by roentgenographic methods.

Reprints will be forwarded under separate cover.

II. Dr. M. Akune, Prof., Oto-rhino-lar

The experinental investigations of this department have been concerned with the physiological effects of industrial noises and of total body vibrations of high frequency:

1. The effect of noise on the B<sub>1</sub> content of the livers of rabbits.
2. Histological changes in the organ of Corti of white mice subjected to factory (airplane riveting) noises.
3. A study of the effect of industrial noises on factory workers.
4. The effect of high frequency total body vibrations on the utricular sac of animals.

Reprints will be forwarded under separate cover.



*ENCLOSURE (A), continued*III. A. Katsunuma, Prof. of Internal Medicine and Director of the Hospital.

The professor is the leading figure at the school and hospital and is interested in hematology.

1. He devised the sterual puncture apparatus used by the Army and Navy.
2. He has made a study of the histology of marrow tissue in lead poisoning.
3. He has devised a method of extracting cattle bones and uses the extract in the treatment of emaciation due to starvation.
4. He has written a very interesting statistical paper on the incidence of the various types of brain tumor in Japan, showing the relative infrequency of gliomas and the high incidence of parasitic cysts and tuberculosis.
5. Recently he has been working on the problem of fatigue in factory workers and has developed several fatigue tests.

Reprints will be submitted under separate cover.

## S. Okada, Prof. of Internal Medicine

The professor has made extracts of various carcinomatous lesions and uses them in the treatment of cancer.

He also has an extract from inflamed gall bladders which he uses in the treatment of gall bladder disease.

Reprints will be forwarded under separate cover.

## Oral Insulin

Dr. Okada has prepared insulin for oral administration as follows:

Eosin 0.01 gm. Acid pigment  
Methyl Violet 0.01 gm. Alkaline pigment  
Saporim 0.1 gm.  
Insulin - as required

Insulin given in this manner requires three times the quantity of insulin as when administered hypodermically.

Acid pigment prevents action of Pepsin  
Alkaline pigment prevents action of Trypsin  
Insulin prepared this way is absorbed by intestines

Clinical study was made on 50 cases.

IV. Dr. W. Saito, Prof. of Surgery

The professor is one of the best known surgeons in Japan and has been very busy during the war with his practice and running the surgical wards at the hospital.

He has done clinical research in spinal anesthesia and has directed a study of the oesophagus by roentgen kymography and tomography.

Reprints will be submitted under separate cover.

*ENCLOSURE (A), continued***S. Kirihara, Prof. of Surgery**

The professor is head of the Second Surgical Service at the university hospital. He has done considerable experimental work in nerve suture and on surgical shock. He has also done considerable gastroscopy and has devised an improvement of the Wolf shindler flexible scope.

Reprints forwarded under separate cover.

**V. U. Sugita, Prof. of Psychiatry**

Has made an extensive study of the character and personalities of war factory workers and find that 20% of them are abnormal. He believes that poor leadership of factory foremen is responsible for most of the variations.

He has also done considerable work with the use of the electroencephalogram in various psychosis.

Attached are reprints on recent work.

Other reprints will be forwarded under separate cover.

**VI. S. Uagura, Prof. of Orthopaedic Surgery**

The professor is world known for his studies of congenital dislocation of the hip and has seen over 1500 cases in his clinic in the last 20 years.

He has continued his studies during the war.

Reprints will be forwarded under separate cover.

**NAGOYA IMPERIAL UNIVERSITY****Faculty of Medicine****Comments on Medical Education**

Dr. H. Tamura, Prof. Dermatology and Dean of the Medical School

The doctor's work has been confined to administration of the medical faculty and school.

The medical college graduated the same number of doctors during the war as before (400 per class) but the curriculum was shortened from four to three years.

There are (according to Dr. Tamura) 70,000 doctors in Japan and only about 20,000 of them are graduates of the full four year or four and one half year courses. He does not feel these men are properly trained and hopes many of them will return for graduate instruction.

Like other Japanese doctors with whom this matter has been discussed, Tamura's main concern is that the profession is over-crowded.

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*ENCLOSURE (A), continued*XXIV. OKAYAMA UNIVERSITY  
Faculty of Medicine

Anatomy Department  
Bacteriology Department  
Hygiene Department  
Clinical Division  
Pharmacology Department  
Pathology Department  
Physiology Department  
Department of Biochemistry

OKAYAMA UNIVERSITY  
Faculty of MedicineAnatomy Department

Dr. Masaji Seki, Prof. of Anatomy and President of the Japanese Anatomical Society

Dr. Seki and his staff have concerned themselves primarily with the histological changes due to hot springs therapy. Available reprints detailing these and other studies are being forwarded under separate cover.

All buildings and practically all equipment and publications of the Department of Anatomy were destroyed during an air raid.

OKAYAMA UNIVERSITY  
Faculty of MedicineBacteriology Department

Dr. Sakae Murakami, Ass't. Prof. of Bacteriology (Substitute for Dr. M. Suzuki, Prof. of Bacteriology)

The Department of Bacteriology, which also teaches parasitology, has investigated four major problems during the war. Available reprints are being forwarded:

1. Typhus vaccine - attempts were made to produce typhus vaccine from the peritoneal membranes of experimentally infected animals. This project never reached a practical conclusion.

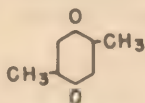
2. Distribution of fluke infestation in fish - extensive surveys of the extent of metagonimus, clonorchis and other fluke infestations of fish have been made, using a digestion technic to liberate the encysted stages for identification.

3. Salmonella types in Japan.

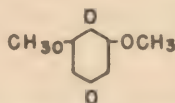


## ENCLOSURE (A), continued

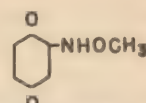
4. Experimental therapy of *R. prowazeki* infections in guinea pigs - among a series of "chinon" derivatives prepared by the Hayashi Pharmaceutical Company in Okayama, three have shown promise in the treatment of guinea pigs experimentally infected with *Rickettsia prowazeki*:



Xylochinon



2-6 Dimethoxychinon



2 Acetaminochinon

OKAYAMA UNIVERSITY  
Faculty of Medicine

Hygiene Department

Dr. Masuo Ogata, Prof. of Hygiene

Practically all research sponsored by Dr. Ogata has been concerned with fundamental immunological phenomena. A large number of reprints are being forwarded under separate cover.

OKAYAMA UNIVERSITY  
Faculty of Medicine

Clinical Division

S. Inada, Prof. of Medicine

I. K. Kitayama, Prof. of Internal Medicine

1. Professor Kitayama has directed a study in the clinical and immunological aspects of influenza. They have been unsuccessful in their attempt to develop a good immunization.

2. The department has done a great deal of work on the problem of encephalitis Japonicum. They have used a mouse brain antigen but production was curtailed due to the war.

3. The professor (Kitayama) claims to have clarified the relationship between the mid brain and the hypophysis coribri. He has made extensive studies of the blood vessel and nerve fibres anatomy in the region of the tuber-cinerium. He claims to have demonstrated a much closer neurovascular relationship between the pituitary gland and the mesencephelon than other workers.

II. Dr. Hideo Yagi, Director of Gynecologic and Obstetric Clinic

Dr. Yagi has sponsored research programs dealing with problems of female sterility, treatment of carcinoma of the cervix and prevention of prenatal and neonatal deaths. Reprints of staff publications are being forwarded under separate cover.

While studying the diagnosis of the causes of sterility, Doctor Yagi developed a modification of the Rubin test for tubal patency. His method consists of installing sterile saline into one tube at a time, through a specially designed instrument which blocks off the tube not being tested. The volume and rate of flow through each tube are charted and the graphs obtained furnish comparative data on the patency of the tubes. Diagrams of the apparatus and sample charts are given in one of the above mentioned reprints.

## ENCLOSURE (A), continued

Dr. Yagi also maintains an excellent pathology museum for teaching purposes.

III. E. Hamamoto, Prof. of Paediatrics.

The professor's staff was greatly curtailed during the war and he has been busy with clinical work.

Recently he has become interested in the study of certain sulphur proteins in milk and serum.

Reprints have been requested and will be forwarded under separate cover.

IV. B. Hata, Prof. of Ophthalmology  
M. Kajiura, Ass't. Prof. of Ophthalmology

This department has been conducting investigations into the problem of myopia. They are conducting clinical and animal experiments to show the effect of general diseases on the development of near sightedness.

Reprints will be forwarded under separate cover.

V. M. Hayashi, Prof. of Psychiatry

The department of psychiatry has been conducting a clinical investigation of schizophrenia.

They have shown the CO<sub>2</sub> tension of cerebral blood to be low in aggravated dementia praecox and rises on amelioration of the patient's condition.

They have also shown the temperature of the brain to be subnormal in schizophrenics.

Reprints will be forwarded under separate cover.

VI. H. Negishi, Prof. of Urology and Dermatology

The professor's clinical researches have been on the therapy of syphilis. He has also conducted many animal experiments on bismuth absorption and elimination and on the spinal fluid concentration of the metal. He has been attempting to find a method of improving the spinal fluid absorption.

He has also done some experiments with auto transplanted dog kidneys and on the effect of Vitamin C deficiency on the susceptibility of the rabbit skin to infections.

Reprints will be forwarded under separate cover.

VII. S. Tsuda, Prof. of Surgery

The professor has been working chiefly on various serum and urine tests for cancer. He has confirmed the work of Fuchs and other German and Japanese workers in this field.

He has also revised interest in the use of a colibacillus antiviral in the treatment of peritonitis.

The professor has always been interested in the problem of pancreatitis and he has continued his studies on the condition.

Reprints will be forwarded under separate cover.

*ENCLOSURE (A), continued*OKAYAMA UNIVERSITY  
Faculty of MedicinePharmacology Department

Dr. Kanichiro Okushima, Prof. of Pharmacology

Research for past five years was conducted in two phases.

First Phase constituted functional and morphological studies of various organs, and the action of drugs, especially on the central nervous system.

Second Phase constituted experimental and chemotherapeutic studies upon various infectious diseases, particularly Typhoid Dysentery, by the Aromatic Guanidin derivatives, especially P. oxybenzyl-guanidin.

Reprints attached.

OKAYAMA UNIVERSITY  
Faculty of MedicinePathology Department

Dr. Hiroshi Tanabe, Prof. of Pathology

Dr. Tanabe has been interested in the following problems and has furnished available reprints to be forwarded under separate cover:

1. Effects of the atomic bomb explosion in Hiroshima - Dr. Tanabe autopsied 19 patients in Hiroshima and 10 in Okayama. Reports are being sent to the Atomic Bomb Commission.

2. Pathology of Japanese virus encephalitis.

3. Pathological changes in endocrine glands associated with hydrogen sulfide or carbon disulfide poisoning.

4. Physiology and pathology of endocrine glands.

5. Pathology of interstitial pneumonia.

6. Pathology of pulmonary tuberculosis.

Dr. Y. Hamazaki, Ass't. Prof. of Pathology

Dr. Hamazaki has published an extensive series of histopathologic studies dealing with virus inclusion bodies and various intracellular structures demonstrated by special stains.

Reprints are being forwarded under separate cover.

OKAYAMA UNIVERSITY  
Faculty of MedicinePhysiology Department

Dr. Kanae Hayashi, Prof. of Physiology

Prof. Hayashi concentrated his studies on the effects of various conditions on blood vessel walls, for the protection and cure of Arteriosclerosis.



*ENCLOSURE (A), continued*

He claims that Vitamin C, upon Epinephrine-Arteriosclerosis protects the blood vessel walls and cures arteriosclerosis.

Reprints attached.

OKAYAMA UNIVERSITY  
Faculty of Medicine

Department of Biochemistry

Dr. Shimizu Tael, Prof. of Biochemistry  
Dr. Kazuno Taro, Ass't. Prof. of Biochemistry

Study on the physiology and chemistry of bile and, especially the origin and the formation of bile acid with 24 carbon atoms.

The gall-bladder of different kinds of animals (fish, the water lizard, the snapping turtle, birds, otter and buffalo) were studied and separated various kinds of sterols (C<sub>26</sub>, C<sub>27</sub>, C<sub>28</sub>) or steroidal Acids (C<sub>26</sub>, C<sub>27</sub>, C<sub>28</sub>) which have a constitution of cholic acid or cholic acid itself. Furthermore, it was established that the other bile acids are formed from the cholic acid under oxyd-reduction in the animal body.

Studies made on relation between the cancerous disease and the abnormal production of nucleic bases.

- (1) Nucleic base Uracil stimulates the growth of cancer tumor of the rat.  
(2) Nucleic base Uracil decreases Carbohydrate Metabolism of the rabbit.  
(3) The cancer tissue shows a remarkable decrease of Vitamin B<sub>1</sub>.  
(4) The Uracil content is found abundantly in young rabbits and it is increased in cases of rats with growing implanted cancer tumor or in case of Vitamin A deficiency.

Reprints attached.

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XXV. OSAKA IMPERIAL UNIVERSITY  
Faculty of Medicine

Department of Biochemistry

Microbiological Institute

Department of Pharmacology

Physiology Laboratory

Surgical Clinic

Takeo Institute for Microbial Disease

Internal Medicine

## ENCLOSURE (A), continued

OSAKA IMPERIAL UNIVERSITY  
Faculty of MedicineDepartment of Biochemistry  
Prof. K. Ichihara

Investigated enzymatic reactions, particularly the production of indol from Tryptophane by bacteria. Studied the enzymatic oxidation of ascorbic acid. An outline of the work as well as reprints are attached.

OSAKA IMPERIAL UNIVERSITY  
Faculty of MedicineMicrobiological Institute  
Dr. Tenji Taniguchi, Director, Microbiological Institute

Directly interested in virus and virus-like diseases from the standpoint of the elementary bodies and inclusion bodies. Principally the relationship to pathogenicity, etiology and the life cycle.

A listing of research for the past five years is appended. Reprints on the completed phases of this work will be forwarded under separate cover.

This institute has been engaged in the production of vaccines, antisera and antitoxins. None are different from those produced in other government laboratories.

Buildings and laboratory facilities exhibit the unkemptness observed elsewhere.

The director, Dr. Taniguchi, from his works, is an internationally recognized individual in the field of microbiology. A listing of his research publications to 1941 is included in the reprints.

Has done work on exo erythrocytic malaria in chickens (gallinaceum).

OSAKA IMPERIAL UNIVERSITY  
Faculty of MedicineDepartment of Pharmacology  
Prof. M. Okagawa  
Assistants: I. Yamamoto; E. Nichikawa; J. Ando; F. Ito

Professor Okagawa and his four assistants were interviewed. His most important investigations were studies on the pharmacology of adrenalin. He has studied the effect of vitamin C on adrenalin content of suprarenal gland and has published a paper on the formation of adrenalin from dioxyphephenylalanine (the mother substance).

He studied over 100 drugs and essential oils as repellents for mosquitos. Those of value were capronic acid, caprylic acid, Shiso oil (from the shiso plant, grown in Hokkaido, containing 35% Pelliraldehyde) benzaldehyde, benzophenene, citronellaldehyde, and citronellyl acetate. The last three were the best. This work is not yet published.

Attached is a list of more recent studies, as well as reprints of their studies.

## ENCLOSURE (A), continued

OSAKA IMPERIAL UNIVERSITY  
Faculty of MedicinePhysiology Laboratory  
Prof. H. Kubo

Investigation of oxidation-reduction potentials of various Biologic and Chemical systems. Attached is a list of papers published and three reprints.

OSAKA IMPERIAL UNIVERSITY  
Faculty of MedicineSurgical Clinic  
Director: N. Takebayashi

Investigated the detoxification of Sulfanilimides in the animal body. Evidence submitted that nicotine acid may assist in the acetylation of Sulfanilimides. Three reprints attached.

Hideo Sei:

Investigated the physiology of the spleen and has prepared a spleen preparation which caused an increase in red blood corpuscles. This preparation is in the experimental stage, but is prepared as follows:

Crushed fresh cows spleens are washed with acetone and ether and stored in sealed containers. Ten such spleen treated with 8 Kg acetone, containing a trace of  $\text{KMnO}_4$  and then 1.8 Kg ether.

The dried material is extracted five times with two percent Na Cl at  $38^\circ\text{C}$  for one hour, centrifuged and filtered. An equal amount of glucose is added and the solution is refrigerated 24 hours, crystals separate which are claimed when given in one gram doses to cause the rapid production of red blood corpuscles.

A second method for production of active material is to add 10 cc of water plus 10 cc of Alcohol, containing 0.5% H Cl to one gram of dried spleen material. Crystal like material forms on the surface. Attached is an outline of this work.

H. Iwanaga, Chief Surgeon  
M. Hama, Assistant

Investigated a blood clotting material prepared by treating cows blood with one percent hydrogen peroxide. The foam is skimmed off dried, dissolved in salt solution and prepared for injection. Ampoules forwarded under separate cover. One or two ampoules of a two percent solution are said to stop bleeding from serious wounds.

Investigated and prepared a hemicellulose (Sulfuric Acid ester) which was found useful as a substitute for blood plasma.

Sample under separate cover.

Developed Histaminase and found it very useful in treating allergic conditions. Sample under separate cover.



*ENCLOSURE (A), continued*OSAKA IMPERIAL UNIVERSITY  
Faculty of MedicineTakeo Institute for Microbial Disease

Dr. Arao Imamura, Director, Third Clinic for Internal Medicine, Osaka University; Director, Takeo Institute for Tuberculosis, Osaka University.

Dr. Imamura is primarily working in tuberculosis, as director of the institute. He has been instrumental in the initiation of the B.C.G. vaccination program in Japan. From his statistics, over a 15 year period, a definite reduction in the incidence of tuberculosis among the vaccinated is shown. By means of a mobile laboratory, over 700 thousand individual examinations of civilians from infancy to old age have been made, in determining further the prevalence of tuberculosis.

The work in progress at present is principally directed toward developing new attenuated *M. tuberculosis hominis* strains by cultivation on a glycerine-gall-potato medium. Four strains showing a high degree of attenuation by animal experimentation, have been developed. These have not been used in humans.

A so-called spectroscopic diagnostic method for cancer, using an extract of cancerous tissue and serum, has been developed.

Reprints of research will be forwarded under separate cover.

A digest of the cancer diagnostic method is appended.

OSAKA IMPERIAL UNIVERSITY  
Faculty of MedicineInternal Medicine

Dr. Arao Imamura, Prof. Internal Medicine

A specific Acid Turbidity Reaction Test for cancer diagnosis has been developed. The method, in Japanese hands, shows promise. The procedure is attached.

Also, attached are reprints of III Clinic for Internal Medicine.

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XXVI. TOKYO JIKEIKAI MEDICAL UNIVERSITY

Department of Forensic Medicine

TOKYO JIKEIKAI MEDICAL UNIVERSITY

Department of Forensic Medicine  
Prof. Mitsuteru Ishikawa

Professor Ishikawa investigated Anaphylaxis in animals since 1934, with the object of its application to the prevention and treatment of allergic diseases, though no clinical application has been made to date. Little attention to date has been made by the clinicians to allergic diseases and their treatment.

*ENCLOSURE (A), continued*

Recent work has been on sensitization of animals to drugs and chemicals, somewhat similar to that of Landsteiner's work. He has attempted to differentiate between chemicals causing skin sensitivity alone, or those causing skin and intestinal muscle sensitivity in guinea pigs. For example, aspirin and barbital, quinine, chromium compounds, cresols caused only skin reactions while iodine, such as lugols solution produced both skin and muscle sensitivity. He was unable to sensitize animals to thyroxin.

Attached is an outline of the research activities of Jikeikai Medical University, also the collected research papers of Prof. Ishikawa on Anaphylaxis.

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XXVII. AGRICULTURAL EXPERIMENTAL STATION

Director of Research

AGRICULTURAL EXPERIMENTAL INSTITUTEDirector of Research

Dr. Teijiro Yabuta, Chemical Engineer, Director of Research

Investigations of interest were the studies made on Vitamin B<sub>1</sub> and C:

Vitamin B<sub>1</sub> was obtained from peanut skins and Dr. Yabuta states that it contains about 7000 units of Vitamin B<sub>1</sub> in 100 Gms. as compared to rice embryo which contains 4500 units of Vitamin B<sub>1</sub> in 100 Gms.

Vitamin C was found present in Persimmon Leaves and in Walnut Leaves from one percent to two percent on the basis of dried leaves.

Reprints attached.

\* \* \*

XXVIII. YOGA MEDICAL SUPPLY DEPOT, TOKYO

Research Department

YOGA MEDICAL SUPPLY DEPOT, TOKYOResearch Department

Lt. Col. T. Yamanouchi, Director of Research

Research Plan since 1940 constituted studies on Cardiotanics, disinfectants, anesthetics, sulphanamides, Vitamins, anti-malaria remedies, and investigations for substitutes of chemicals and provision against lowering of specifications.

## ENCLOSURE (A), continued

Investigations of interest are as follows:

1. Caffeine sodium acetate and sodium naphthalene-sulphate were produced experimentally to economize the usage of toluene, the raw material for caffeine sodium benzoate.
2. Synthesis of dimethyl ester of phthalic acid.
3. Simplified method of obtaining local anesthetic by the combination of p-aminobenzoin ethyl ester and p-phenol-sulphonic acid.
4. Synthesis of sulphabenzotriazole for a new chemotherapeutic medicine.
5. Synthesis of thiazole nucleus for vitamin B<sub>1</sub> without the use of phosphorus compounds.
6. Utilization of butyl ester of gallic acid to prevent oxidation of vitamin A.
7. Promotion of the therapeutic effect by the modification of quinine (seven new effective compounds have been obtained).
8. Simplified method of manufacturing disinfectant from pine root oil.
9. Simplified method of obtaining vitamin B<sub>1</sub> from rice and wheat germs or rice bran.
10. Examination of the use of Nerium Odorum, a cardiotonic.
11. Manufacture of vitamin B<sub>1</sub> from the waste liquor obtained during starch production.
12. Manufacturing method for intestinal medicines by antiseptic butyrobacteria.

Reprints and sample of bacillus Butricus enclosed.

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XXIX. RESEARCH INSTITUTE OF TUBERCULOSISRESEARCH INSTITUTE OF TUBERCULOSIS

1005 Shimakiyoto, Kiyose, Kitatama County, Tokyo

Director: Dr. Harumita Oka.

This modern appearing laboratory is one of the important centers for tuberculosis research. Dr. Oka has headed a 24 man committee which has been responsible for giving BCG vaccine to more than nine million people, exclusive of the Army and Navy. This committee has studied a group of 100,000 Japanese receiving the vaccine and another equal sized group in another area which served as a control.



*ENCLOSURE (A), continued*

Using repeated tuberculin tests as the basis for X-ray examination during a five year period of observation completed in 1943, the following general conclusions were drawn:

The 100,000 people receiving BCG in certain areas showed only 50% of the X-ray evidence of infection seen in the control areas, 1/4 the clinical evidence of infection and 1/7 the death rate. In the group receiving BCG, the percentage of extra pulmonary lesions was reduced and the usual peak death rate between 20 to 25 years of age was flattened.

The vaccine is made from the original BCG strain brought from France. This culture is maintained on potato bile medium. When vaccine is to be produced, the organisms are cultured two weeks in Sauton's fluid, dried somewhat on sterile filter paper, weighed, suspended by shaking in Saline and gelatin and dispensed for immediate use. The vaccine is outdated after seven days.

It is administered intracutaneously in a dose of 0.1 cc which contains 0.04 to 0.06 mg. of tubercle bacilli. It is only given to tuberculin negative individuals. It is not given subcutaneously because of the danger of abscess formation. The age groups most extensively studied have been 15 to 25.

Dr. Oka has furnished English summaries of research publications, copies of the publications and reports pertaining to BCG and a stock culture of the BCG culture used to produce the vaccine. (Additional reports on work with BCG vaccine, have been accumulated from other sources and reported under other institutions.)

Stock culture carried to Surgeon General's Office by Lt. Col. Henry Cotton, on 18 November 45.

Reprints are attached.

English summaries will be forwarded under separate cover.

\* \* \*

XXX. WARTIME RESEARCH COMMISSIONBoard of Technical ScienceWARTIME RESEARCH COMMISSIONBoard of Technical Science

This appears to be an overall scientific development and research organization which is responsible to the Cabinet. Its governing section is The Chamber for Technical Sciences.

The Chamber for Technical Sciences is composed from the Vice Ministers of Cabinet positions and from Technical services such as Aviation, Shipbuilding, and Ordnance Administrative Headquarters. In all there are 25 members. This chamber decides upon what projects shall be undertaken, allots funds, decides upon priority, and delegates the work. However, the chief of each project is appointed by the agency for which the project is undertaken.

## ENCLOSURE (A), continued

Most of the scientists working on WRC projects are also those associated with the NRC. It is said that this results from the lack of qualified men.

Reference is made to Research Projects of Army Medical College of Appendix "A", Section III of the periodic reports.

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XXXI. EDUCATIONAL REQUIREMENTS FOR MEDICAL DEGREE, IGAKUSHIEDUCATIONAL REQUIREMENTS FOR MEDICAL DEGREE, IGAKUSHI

(From interrogations of responsible members of the Ministries of Education and of Public Health and Welfare and Dr. Tamiya, Dean of Tokyo Imperial University Medical College.)

Curriculum requirements are set by the Ministry of Public Health and Welfare, and the Ministry of Education sees that they are met by the colleges.

SCHOOL	YEARS	AGE
Elementary School	6 Years	6 - 12
Intermediate School (Semmon Gakko or Class B Medical College requires an extra year in lieu to Higher School Course)	4 or 5 Years	12 - 16 or 17
Higher School (Reduced to 2 years during the war)	3 Years	19
Medical College (Reduced to 3 years during the war)	4 Years	23

Upon graduation from Medical College, a student may apply for license; no special examination is required.

Faculties of the Universities, other than Medicine, require three years for graduation.

Internship is not required but is customary. Though clinical work is included, the greater effort goes toward study and preparation of a thesis which usually requires two to three years to complete. Then the student is granted a higher degree, termed "Hakushi".

The Semmon Gakko (class B school) was designed about 1937 to produce medical men for the forces exploiting East Asia. Semmon Gakko students entered after Intermediate school. Course was for three years in contrast to four years for the University course. During the war it was reduced to two years. In this manner a large group of poorly educated men was produced. The Japanese say that these men "lack culture".

The above appears to mention two of the factors tending to lower standards of medicine:

1. The mass production of the Semmon Gakko.
2. The large proportion of University graduates seeking a higher degree rather than going into clinical work. This also tends to "pad the literature" with worthless papers.

## ENCLOSURE (A), continued

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## APPENDIX "B"

## Alphabetical List of Persons Whose Activities Have Been Examined

\* \* \*

NIIGATA AREA

## XIV NIIGATA GOVERNMENT MEDICAL COLLEGE

<u>Name</u>	<u>Associated with:</u>
AKAZAKI, K.	Pathology
AMANO	
ARIYAMA, N.	Biochemistry
HASHIMOTO, Takashi	Dermatology - Dean of school
ITO, T.	Bacteriology
KAITO, R.	Bacteriology and Serology
KIHARA, K.	Pharmacology
NAKATA, M.	Surgery
NOSAKIO, S.	Radiology
SHIBATA, I.	Internal Medicine
TASAKA	Internal Medicine
YASUDA, M.	Biochemistry

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SENDAI AREA

## XV TOHOKU IMPERIAL UNIVERSITY MEDICAL COLLEGE

EBINA, T.	Bacteriology
KUMAGAI, Taizo	Director of T.B. and Leprosy Institute. President of Tohoku University.
KATSURE, A.	Neurosurgery
KATO, Toyojiro	Emeritus Prof. of Medicine
KOGA, Y.	Radiology
MASAMUNE, H.	Biochemistry
MATSUOKA, S.	Neuro-Pathology
MIKI, I.	Orthopedics
MUTO, M.	Surgery
NASU, S.	Pathology
OSATO, S.	General Research (formerly at Kanazawa)
SATO, S.	Bacteriology
TERASAKA, M.	Pharmacology
YATSUYANAGI, S.	Parasitology

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## ENCLOSURE (A), continued

SAPPORO AREA

## XVI HOKKAIDO IMPERIAL UNIVERSITY MEDICAL COLLEGE

<u>Name</u>	<u>Associated with:</u>
AMBO, H.	Pathology
ARIMA, H.	Medicine
INOUE, Zenjuro	Hygiene
ISHIBASHI, Toshima	Psychiatry
IWASHITA, K.	Urology and Dermatology
KODAMA, S.	Anatomy - Dean of school
KON, I.	Pathology - Pres. of school
MASAKI, Takio	Pharmacology
MIKAMI, J.	Surgery
MINOSHIMA, T.	Physiology
NAGI, K.	Pediatrics
NAKAGAWA, S.	Medicine
NAKAMURA, Yutako	Bacteriology
ONO, S.	Gynecology
OCHI, Sadami	Emeritus Prof. of Ophthalmology
SAETO, S.	Director, Hot Springs Research Institute.
SASAKI, Y.	Mycologist
SAWATARI, J.	Otology
SUGINOME, H.	Organic Chemistry
TAKEDA, K.	Pathology
UYENO, S.	Legal Medicine
YAMASAKI, H.	Anatomy
YANAGI, S.	Surgery
YASUDA, M.	Biochemistry

## XVII HOKKAIDO IMPERIAL UNIVERSITY

HAMADA, S.	Bacteriology in Vet. Medicine
HANZAWA, M.	Applied Mycology
ISHIKAWA, K.	Veterinary Medicine - Dean
ITO, Nubo	Ass't. Prof. of Agricultural Chemistry.
KOHANAWA, C.	Hematology in Vet. Medicine
KUROSAWA, K.	Obstetrics in Vet. Medicine
NAKAMURA, N.	Medical Director, Cryological Institute.
TAKAHASHI, E.	Prof. of Agricultural Chem.

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## ENCLOSURE (A), continued

KANAZAWA AREA

## XX KANAZAWA GOVERNMENT MEDICAL COLLEGE

NameAssociated with:

AKIMOTO, H.	Psychiatry
HEKI, M.	Internal Medicine
HIRAMATSU, H.	Physical Therapy
INOUE, T.	Forensic Medicine
ISHIKAWA, T.	Pathology
ISHIMARU, S.	Anatomy
ISHIZAKA, N.	Dean of school
IWASAKI, Ken	Biochemistry
IZUMI, S.	Pediatrics
KISAMORI, S.	Gynecology
KUMANOMIDO, S.	Surgery
KUROCHI, Y.	Ophthalmology
KURU, M.	Surgery
MATSUDA, K.	Otolaryngology
MIYATA, S.	Pathology
NAMIKI, J.	Dermatology
OTANI, S.	Hygiene
OKAMOTO, H.	Institute of T.B.
SAGUCHI, S.	Anatomy
SAKURAI, Yosio	Pharmacy
TANI, T.	Bacteriology
TANINO, F.	Internal Medicine
UENO, K.	Physiology

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KYOTO AREA

## XXI KYOTO IMPERIAL UNIVERSITY MEDICAL COLLEGE

AKACHI	Biochemistry
AMONO, S.	Pathology
ARAKI,	Neurosurgery
FUJINAMI, A.	Pathology
FUKITANI, A.	Pathology
FUNAOKA	Anatomy
HATTORI, S.	Pediatrics
INOUE, G.	Pathology
KIMURA, R.	Microbiology, Dean of College
MATSUMOTO, T.	Pathology
OGASAWARA, Noboro	Director, Leprosy Institute and Microbiological Institute.
OGUI, Kikuo	Pharmacy
SEKI, Takeka	Pharmacology
SHIMANOTO, M.	Pathology
TAKAHASHI, Torizo	Biochemistry
TODA	Physiology
UNNO, G.	Pathology
UCHIJINO, S.	Director Uchijino Laboratory - Chemistry
YAMAZOKI, H.	Pharmacology
YAMORI, T.	Pathology
YOMAGUCHI, S.	Science, Parasitology

## ENCLOSURE (A), continued

\* \* \*

KYUSHU AREA

## XXII KYUSHU IMPERIAL UNIVERSITY, Faculty of Medicine

<u>Name</u>	<u>Associated with:</u>
ATSUBO, Kiomi	Hygiene and Parasitology
FUKUDA, Tokushi	Pharmacology
HIROHATA, R.	Biochemistry
IKUI, H.	Ophthalmology
IMAI, Takami	Pathology
INOUE, K. (K. Ishikawa)	Radiology
ISHIYAMA, F.	Surgery
JIRINAKA, S.	Orthopedics - Dean of school
KUSANAKI, G.	Medicine
MITSUYA, T.	Urology
MITSUSHIMA, Haruo	Public Health
NAKASHIMA, Y.	Radiology
OGATA, D.	Physiology
SASAKI, M.	E. E. N. T.
TAMURA, S.	Ophthalmology
TODA, Tadao	Bacteriology and Protozoology
UMAYAHARA, S.	Obstetrics and Gynecology

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NAGOYA AREA

## XXIII NAGOYA IMPERIAL UNIVERSITY, Faculty of Medicine

AKUNE, M.	E. E. N. T.
HAGINO, R.	Ophthalmology
HOTTA, K.	Biochemistry
KATSANUMA, A.	Internal Medicine - Director of Hospital
KIKUKAWA, U.	Obstetrics and Gynecology
KIRAHARA, S.	Surgery
KOINUMA, Bogo	Hygiene
KUNO, I.	Physiology
MIWA, M.	Pharmacology
NAGAMATSU, H.	Anatomy
NAKAE, Kyoichi	Pediatrics
NAKASHIMA, M.	Ophthalmology
OGASAWARA, Kazuo •	Bacteriology
OKADA, S.	Internal Medicine
OSHIMA, Fukuzo	Pathology and Parasitology
SAITO, W.	Surgery
SUGITA, U.	Psychiatry
TAMURA, H.	Dermatology - Dean of school
TOGARI, C.	Histology
UAGURA, S.	Orthopedics
YAMADA, K.	Histology



## ENCLOSURE (A), continued

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OKAYAMA AREA

## XXIV OKAYAMA UNIVERSITY, Faculty of Medicine

<u>Name</u>	<u>Associated with:</u>
HAMAMATO, E.	Pediatrics
HATA, B.	Ophthalmology
HAYASHI, Kanae	Physiology
HAYASHI, M.	Psychiatry
HAYASHI, S.	Director of Research, Hayashi Pharmaceutical Co., Ltd.
INADA, S.	Medicine
KITAYAMA, K.	Medicine
MURAKAMI, Sakae	Bacteriology
NEGISHI, H.	Urology and Dermatology
OGATA, Masuo	Hygiene
OKUSHIMA, K.	Pharmacology
SEKI, Masaji	Pres., Japanese Anatomy Society
TAEI, Shimizu	Biochemistry
TAKEDA, T.	X-Ray
TANABE, Hiroshi	Pathology
TARO, Kazuno	Biochemistry
TSUDA, S.	Surgery
YAGI, Hideo	Gynecology and Obstetrics

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OSAKA AREA

## XXV OSAKA IMPERIAL UNIVERSITY MEDICAL COLLEGE

FUCHUSHIMA, K.	Internal Medicine
FUSE, N.	Internal Medicine
IMAMURA, Arai	Director, Takeo Institute for Tuberculosis
ICHIHARA,	Biochemistry
KAGIWARA, S.	Hygiene
KUBO	Biochemistry
KINOSHITA	Director, Cancer Institute - Pathology
KUROTSU, T.	Anatomy
MABUCHI, H.	Physiology
NICHIZAWA, Y.	Pediatrics
OMURA, T.	Forensic Medicine
OKAGAWA, M.	Pharmacy
OTANI, S.	Director, Bacterial Chemistry Institute
SATANI, Y.	Director, Institute of Leprosy
TANIMURA, T.	Dermatology
TAKABAYASHI, H.	Surgery
TAKAGI, K.	Anatomy - Dean of Med. School
TANIGUCHI, Tenji	Bacteriology - Director, Microbiological Institute
YAMAKAWA, K.	Otolaryngology
YOSHIMATSU, N.	Gynecology and Obstetrics
YOSHIDA, S.	Parasitologist (Retired)

## ENCLOSURE (A), continued

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TOKYO AREA

<u>Name</u>	<u>Associated with:</u>	<u>Institution</u>
AIDO, K.	Hygiene	XIII
AKAMATSU, S.	Biochemistry	XIII
AKIYA, Satiro	Toxicology	II
ARIFUKA, Sheichi	Chemo-therapeutics	XI
ASANO, Mitizo	Biochemistry - Reg. Member	I
ASHIDA, Taizo		XVIII
AZUMA, Ryotaro	Pharmacology	II
HASEGAWA, Shuji	Biochemistry - Reg. Member	I, XI
HATSUTA, Y.	Ass't. Chemist	XII
HATASHI, H.	Director	II
HAYASHI, Ryoza	Lt. Comdr.	IX
HAZATA, H.	Bacteriology	XIII
HIRAGA, Minoru	Urology and Dermatology	III
HIRAI, Masahito	Maj. Gen. - Deputy Director	III
HONDA	Expert	I
HOSOYA, S.	Serology - Reg. Member	I
IBUKA, Kenji	Lt. Gen. - Director	III
ISHII, Nobutaro	Parasitology - Reg. Member	I
ISHIKAWA, Mitsuteru	Medicine	XXVI
ISHIKAWA, Tomoyoshi	Physiology	XI
ISHIWARA, Fusao	Director, Hygienic Lab.	VIII
ISIDATE, Morizo	Chemical Analysis	II
INOUE, Takatomo	Col. - Biologic Mfg. Div.	III
ITO, Y.	Ophthalmology	XIII
KAMBAYASHI, H.	Lt. Gen. - Surgeon General	III
KAMBAYASHI, Y.	Vice Admiral - Director	IX
KANNO, S.	Director, Bacteriological Lab.	VIII
KAWAI, Samae	Captain	IX
KAWAKITA, Yoshio	Bacteriology - Reg. Member	I
KAWAMURA, S.	Botany	XII
KAWAMURA, Rinya	Pathology	IV, VI
KITAOKA, Masami	Virology - Reg. Member	I
KITASHIMA, Taichi	Director	IV, VI
KOBAYASHI, Rokuzo	Bacteriology	IV, VI
KOBAYASHI, Yoshito	Pharmacology	II
KAGAYA, Y.	Forensic Medicine	XIII
KOIZUMI, T.	Parasitology	IV, VI
KOIKE, K.	Dean of College	XIII
KOJIMA, Saburo	Reg. Member - Editor, Journal of Experimental Medicine	I
KOMINAMI, K.	Mycologist	XII
KOYAMA, T.	Clinical Medicine	II
KURIMOTO, Uzuhiko	Bacteriology - Reg. Member	I
KUSANA, Yoshio	Hygiene	IV, VI
KUTSUKAKE, R.	Pathology	IV
MATSUKI, M.	Lt. Col. - Maxillo-facial	III
MATSUMOTO	Pathology	II
MATSUSAKI, Akira	Maj. Gen. - Director	V
MIKI, Yukiharu		XVIII
MINAMIZAKI, Yushichi		XVIII
MINATO, A.	Pharmacological Chemistry	XIII
MISANOU	Major - Radiology	III

## ENCLOSURE (A), continued

<u>Name</u>	<u>Associated with:</u>	<u>Institution</u>
MISAWA, Takayoshi	Allergy	II
MIYAGAWA, Yonegi	Reg. Member - Dojinki Society	I
MIYAKE	Pathology	II
MORIYA, Y.	Electrical Engineer	I
NAGAE, D.	Col. - Surgery	III
NAGANO, H.	Parasitology	VI
NAKAHARA, Waro		VII
NIATO	Major - Biology	III
NISHIMURA, Iwao	Chemo-therapeutics	XI
NISHINO, Cnujiro	Dean	IV
NOBECHI, Kejio	Director	XI
OGATA, Tomio	Serology	II
OGAWA, Teizo	Brain Research Inst.	II
OMURI, K.	Internal Medicine	IV
OKA, Harumita	Director	XXIX
OSUZU, Hirobunii	Col. - Internal Medicine	III
OTANI, Shoichi	Maj. General	XXVIII
SAITO, S.	Medicine	Nihon Univ. Med. College
SAKURASAWA, F.	Director of Hospital	Nihon Univ. Med. College
SATO, K.	Dermatology and Syphology	XIII
SEO, T.	Surgery	XIII
SHIMIZU, Kentaro	Brain Research Inst.	II
SHOJI, Yoshiharu	Ophthalmology	II
SUEYOSHI, Yuji	Biochemistry	IV
SUWA, Keisaburo	Col. - Pathology	
	Neuro-psychiatry	II, III
TAHAKI, Y.	Dean	XXVI
TAKANO, Rokuro	Bacteriology	VI
TAKIGAWA, K.	Col. - Orthopedic Surgery	III
TAKITA, Kikaji	Pharmacology	II
TAKURA, T.	Pediatry	XIII
TAMIYA, Takio	Dean and Director of Tokyo Imperial University, Medical College.	I, II
TAMURA, Kenzo	Pharmacology	II
TANIKAWA, K.	Hygiene	XIII
TANAHASHI	Col. - Urology	III
TATSUI, Goro	Colonel	III
TODA, K.	Col. - Plastic Surgery	III
TSUZUKI, M.	Surgery	II
UCHIMURA, Yushi	Director, Brain Research Inst.	II
UMEZAWA, H.	Penicillin Research	III, II
YABE, M.	"BCG" Work	III, XV
YABUTA, T.	Agricultural Chemistry	XII
YABUTA, Teijiro	Director of Research	XXVII
YAMAGATA, S.	Col. - Ophthalmology	III
YAMASHIMA, Hoshika	Major	III
YAMAUCHI, T.	Lt. Col. - Director of Research	XXVIII
YAMAGUCHI, Maseyoshi		XVIII
YAOI, Hidetake	Bacteriology - Expert	I
YAZAKI		XXVI
YOKOKURA, S.	Rear Adm. - Assoc. Chief of Research	IX
WATANABE, Yoshimasa	Bacteriology	VI



## ENCLOSURE (A), continued

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## APPENDIX "C"

Items of Interest Uncovered During the Investigation  
of Japanese Medical Activities

\* \* \* \*

The numbered items are specific ones considered to be of interest to medical men in general. This list does not necessarily include all items uncovered, for the available literature was incompletely reviewed, due to language difficulties; some items that are not listed may be of interest to certain medical specialties.

These numbered items are followed by references, indicating the section of Appendix "A" and the report in which it is mentioned.

## 1. Dysentery of unknown etiology occurring on Shikoku.

Section I - Report of the same title.

## 2. Myopic Problems.

Section II - Ophthalmology Department  
Section XXIII - Clinical Division - Ophthalmology  
Section XXIV - Ophthalmology  
Section XI - Myopic Problem

## 3. "Melanophoren hormone" in night vision.

Section II - Ophthalmology Department  
Section XXIII - Ophthalmology  
Section IX - Pharmacy

## 4. Insect Repellents.

Section III - Pharmacology Department  
Section XVI - Pharmacological Laboratory (5, 6, & 7)  
Section III - Research Reports - Studies on Communicable Diseases (2b)  
Section III - Research Reports - Other studies, Prophylaxis and Treatment of Malaria.

## 5. Gas Gangrene Vaccine.

Section III - Manufacturing Division, Niigata

## ENCLOSURE (A), continued

## 6. B.C.G. Vaccines.

Section III - Army Medical College - Kanazawa  
Section III - Biologic Manufacturing Division  
Section VI - Kitasato Institute (1)  
Section III - Research Reports - Studies on Internal Medicine (1).  
Section III - Research Reports - Other studies, Tuberculosis.  
Section XXII - Bacteriology Department  
Section XXIII - Clinical Division - Ophthalmology  
Section XXV - Takeo Institute for T.B.  
Section XXIX  
Section XVI - Hygienic Laboratory

## 7. Use of "Cepharanthin" in Treatment of T.B.

Section XI - Chemotherapeutic Institute  
Section XIV - Cepharanthin  
Section XV - S. Ota  
Section XV - Institute of T.B. and Leprosy  
Section III - Research Reports - Studies on Internal Medicine (2)  
Section III - Research Reports - Other studies, Tuberculosis.

## 8. Toxic glycidamine from Human Cancer.

Section XV - Medico-Chemical Institute

## 9. National Research Council Projects of Japan.

Section XV

## 10. Gas Measuring apparatus for Measuring Minute amounts of Nitrogen.

Section XX - Biochemistry

## 11. O-Aminophenol Treatment of Tuberculosis.

Section XX - Chemotherapy in T.B.  
Section XX - Pharmacology

## 12. Anti-Malarial Drugs.

Section XX - Pharmacology - Dirnethozy-8-diethylamino-  
ethylaminoquinoline.  
Section XXI - Pharmacology - 2 Methyl-Mercapto 6 chlor-9-pyridino  
3'2' and 2:3 quinoline chlor hydrate.  
Section XXI - Tropical Disease - Use of Lowered Oxygen Tension in  
Treatment of Malaria.  
Section XXII - Bacteriology - 2-Methoxy-6-chlor-9 (4-diethylamino-  
cydohexyl-amino-acridin).  
Section IX - Pharmacy - Sulfadibrombenzene.  
Section I - Parasitology  
Section III - Parasitology  
Section IV - Parasitology  
Section III - Studies on Internal Medicine (3b & c).

## 13. Electronic Microscope Studies.

Section XIX - (15)  
Section XXI - R. Kimura

*ENCLOSURE (A), continued*

## 14. Dengue Virus - Cultivation and Vaccines.

Section XXI - R. Kimura  
Section XXII - Bacteriology Department  
Section I - Dengue.

## 15. Leishmaniasis.

Section XXI - R. Kimura - Treatment of Leishmaniasis with Antimonyl hexonate  
Section XXI - Pharmacology  
Section I - Parasitology Department  
Section II - Colloidal Preparations of Various Heavy Metals (2).  
Section III - Research Reports - Studies in Pathological Fields (5).

## 16. Schistosomiasis.

Section XXI - Pharmacology - Treatment of Schistosomiasis with Antimonyl hexonate.  
Section II - Colloidal Preparations of Various Heavy Metals (2).

## 17. Prosthetic Limb Studies.

Section XXII - Orthopedic Department

## 18. Treatment of R. Prowazeki Infections.

Section XXIV - Bacteriology

## 19. Leprosy Treatment.

Section XXIV - Clinical Medicine  
Section XV - Institute of T.B. and Leprosy  
Section V - Okuba Army Experimental Station (Neocyamine)  
Section VI - Kitasato Institute (1)

## 20. Wartime Research Commission.

Section XXV

## 21. Education Requirement for Medical Degree - Igakushi

Section XXXI  
Section III - Organization of Medical Department, Japanese Army (6).

## 22. Comments on Medical Education

Section XXIII

## 23. Conversion of Sea Water to Drinking Water.

Section IX - Pharmacy Department

## 24. Intra-Arterial Shock Injection Treatment.

Section XIII - Chiba Government Medical College  
Section XVI - Hokkaido - Hot Springs Research Institute



## ENCLOSURE (A), continued

## 25. Bone Marrow Extract for Anemia.

Section XIV - Biochemistry

## 26. Complement Fixation Reactions in Malaria.

Section XVI - Bacteriology

Section III - Parasitology

Section III - Research Report - Studies on Internal Medicine.

## 27. Colloidal Preparations of Various Heavy Metals.

Section I - Colloidal Preparations of Various Heavy Metals (1).

## 28. Dried Biologic and Fat Preparations.

Section I - Colloidal Preparations of Various Heavy Metals (3, 4, 5, &amp; 6).

Section III - Biologic Manufacturing Division

Section III - Research Reports - Studies on Communicable Diseases (II-1, 2, 3, 4, &amp; 5).

## 29. Japanese B Encephalitis.

Section I - Japanese B Encephalitis

Section I - Encephalitis Virus Cultured in vitro

## 30. Infectious Hepatitis.

Section I - Infectious Hepatitis Virus

## 31. "Communitin".

Section II - Pathology Department (1).

## 32. Ishihara Color Charts.

Section III - Clinical Division - Ophthalmology

## 33. Penicillin.

Section III - Penicillin Research Committee

Section XII - Nagao Institute

## 34. Army Medical College Research Reports.

Section III - Army Medical College Research Reports

## 35. Studies on Water Supply Apparatus.

Section III - Research Reports - Studies on Communicable Diseases (IV - 1, 2, 3, &amp; 4).

## 36. Typhoid Fever.

Section III - Research Reports - Studies in Pathological Fields (9).

## 37. Treatment of Sea-sickness and Air-sickness.

Section III - Research Reports - Studies in the Field of Otolaryngology.

## ENCLOSURE (A), continued

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## APPENDIX "D"

Alphabetical List of Institutions Screened  
(All Roman Numerals refer to Appendix "A")

\* \* \* \* \*

Agricultural Experimental Station	XXVII
Army Depot for Medical Materials, Yoga	XXVIII
Army Experimental Station, Okuba	V
Army Medical College	III
Chiba Government Medical College	XIII
Educational Requirements for Medical Degree	XXI
Hokkaido Imperial University, Medical School, Sapporo	XVI
Hokkaido Imperial University	XVII
Institute for Infectious Diseases (TIU)	I
Institute of Physical and Chemical Research	VII
Institute for Public Health	XI
Jikei-Kai University, Medical College	XXVI
Kanazawa Government Medical College	XX
Keio University Medical College	IV
Kitasato Institute for Infectious Diseases	VI
Kyoto Imperial University	XXI
Kyushu Imperial University, Fukuoka	XXII
Ministry of Health and Social Affairs	XVIII
Municipal Hygiene Laboratory, Tokyo	VIII
Nagao Institute	XII
Nagoya Imperial University	XXIII
Navy Medical College	IX
National Research Council	XIX
Niigata Government Medical College	XIV
Okayama Government Medical College	XXIV
Osaka Imperial University	XXV
Research Institute for T.B.	XXIX
Technical Intelligence	I
Tohoku Imperial University, Sendai	XV
Tokyo Imperial University	II
Tokyo Imperial University, Government Institute for Infectious Diseases	I
Warime Research Commission	XXX

*ENCLOSURE (A), continued***Institutes Associated With Universities  
and Reported Under University Heading**

Morinaga Penicillin Plant	III
Army Medical College - Niigata	III
Army Medical College - Kanazawa	III
Criological Institute	XVII
Aeronautical Medical Institute	XV
Research Institute for Acid Fast Bacillus	XV
Institute for Hot Springs Therapy	XVI
Chemotherapeutic Institute	XI
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**No Reports Rendered**

Morioka Medical College  
Aomori Medical College  
Tokyo Pharmaceutical College  
Tokyo Charity Hospital  
Showa Isen Hospital  
Nippon university, Medical College  
Nippon Medical College



ENCLOSURE (B)



ENCLOSURE (B)

RESEARCH PROJECTS AND FINDINGS  
OF THE ARMY MEDICAL COLLEGE, TOKYO

\* \* \* \* \*

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## ENCLOSURE (B)

RESEARCH PROJECTS AND FINDINGS  
OF THE ARMY MEDICAL COLLEGE, TOKYO

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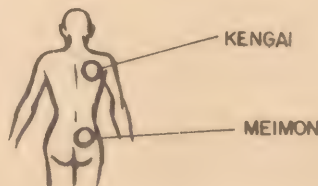
Part One  
STUDIES REGARDING SANITATION AND HYGIENE✓ 1. Anti-cold preparations in the extreme cold region.

1. Manufacture of anti-cold raiment of which particular sections are specially protected.

Purpose. As the anti-cold raiment heretofore in use is very heavy and inconvenient to move, we try to increase the efficiency of it by protecting particular sections of our body.

Resume of methods. There are two sorts of sections in our body, one is sharp and the other is insensible to coldness. We made a special study of moxibustion, which has been utilised therapeutically in Japan, and warmed the moxa points concerned with coldness. Then we measured the respiratory metabolism, the skin temperature and the condition of trembling.

Results. We find that the warming of "Kengai" and "Meimon" is most favorable. By warming these two points, our body is indeed protected, but our fingers and toes it has no effect. So we made the portable heater with hand-dynamo for warming of body ends. With this heater we can protect our toes from freezing by using it once an hour.

✓ 2. Manufacture of anti-cold shoes for ski troops.

The aim of this manufacture is as follows:

As toe frostbite in the snowed land is chiefly caused by penetration of slush into shoes, we intended to keep them dry.

We used for this purpose rubber-covered waterproof shoes, and studied the condition of perspiration and the influence upon protection of the foot which was caused by increase of thermic conductivity of shoes, but its details are still unfinished.

Nevertheless, the rubber-covered shoes are worthy of recommendation for frostbite protecting, as there is no noticeable influence of the shoes.

✓ 3. Study of accommodations for wounded in the extreme cold zones and of camping in snow covered regions.

*ENCLOSURE (B), continued*

As in the extreme cold and snow covered zone it is insufficient to send camping materials and is impossible to operate on the wounded completely, we tried to find its preparations.

## Resume of methods.

- (1) We examined a snow-cave, which a mountaineer used - if it is available for our troops or not.
- (2) Portable tent - now under study.
- (3) We made a hood-shaped tent of the rubber-covered thick clothes with heater tube in order to warm it for treating of the wounded.

## Results.

- (1) A snow cave with accommodation for about 10 men is most favorable. Under 30°C we can encamp in it with only anti-cold raiment.
- (2) From portable tent we made no records.
- (3) With above mentioned tent we can keep the temperature about 40°C under atmospheric temperature of 30°C and are able to treat the wounded. But for practical use there are many to be improved.

4. Study of treatment of frostbite.

Concerning the treatment of frostbite of men it is best to soak in warm water the same as our body temperature. But as in a fighting operation this method is practically impossible, we studied this treatment.

Experimental procedure. We took advantage of the above mentioned tent in order to obtain warm circumstances. We generated the damp in the tent.

Results. We had to interrupt this experiment at its entrance. Nevertheless a good result is promising.

II. Study of supplies.1. Actual conditions of supplies.

Purpose. In war time our supplies were decreasing gradually. We tried to know its actual conditions and to contribute to their development.

Procedure. We gathered menus which extended over one week or ten days in different regions and examined the supplied calories and articles of food.

## Results.

	Dec. 1941	May 1943	Dec. 1944
Total Mean	3262 calories	3186 calories	2933 calories
Max.	3709 calories	3688 calories	3260 calories
Min.	2739 calories	2542 calories	2520 calories
Number of the articles of side dish in 10 days. 27-53		36	24

*ENCLOSURE (B), continued***2. Study of reaction of reduced diet on the physical condition.**

The aim of this study is to know the course of depreciation of our physical ability by reduced diet.

Methods. We observed the change of weight and working ability of a subject who was taking 300gm. of rice, 8gm. of sugar and 30gm. of powdered "miso" per day and was working as hard as an ordinary soldier.

Results. After a month continuance we find that the weight was decreased by 10%, the running time of 200 meters with a 40 kilogram mud-bag prolonged by 13 seconds (from 60 to 73 seconds) and lifting ability of a 25 kilogram mud-bag decreases from 17 times to 14 times. Afterwards he took the same food with sufficient supplies of vitamins and salts for a month without any decrease of working ability, although his weight reduced by 17% in comparison with the original one.

**3. Elements contained in the food supplies.**

We examined the elements contained in our foods by means of spectro-photography.

Results. We found that beans contain comparatively many kinds of salts, but the intention of further study was interrupted with the termination of the war.

**4. Study of physiological value of protein.**

We measured the physiological value of protein contained in rice, sardines and soya-beans.

Method and results. After taking these proteins we compared the absorbed nitrogen within urine excreted one. As to each protein it is the same results with generally convinced, but the physiological value of proteins combined with each other is above the original one.

**5. Study of the value of hulled rice from the utility view point.**

From the economical and nutritious view point we examined the former results and made an experiment of absorption of hulled rice and polished rice.

Results.

(1) If we pay sufficient attention on cooking methods and mastication, etc., there is no particular injury in the hulled rice diet.

(2) The hulled rice diet has no value from the economical and nutritious view point, if we can supply sufficient subsidiary articles of diet.

**III. Improvement of barracks and field positions.****1. Study of continental fortresses.**

We had the intention of improving the hygienical equipment in building the fortresses near Manchurian boundary lines.



*ENCLOSURE (B), continued*

At the fortification planning, we expressed our opinion concerning the medical affairs and contributed to improving them, but not to a sufficient degree.

2. Study of double accommodations in the barracks.

Purpose. To know the conditions of environment of double accommodations in summer time.

Methods. We examined the environment at night in the cases of either the room being normally occupied with soldiers, or of its maximum accommodation by measuring its temperature, humidity, and CO<sub>2</sub> quantity.

Results.

(1) At night while sleeping the average room temperature shows 7° or 8°C higher than the outdoors, the humidity 70-75% and the CO<sub>2</sub> quantity reached 0.1-0.2%. The conditions of upper sections are far worse than lower.

(2) By the maximum accommodation the rising of mercury is far faster than in the ordinary case and so the ventilation was increased. The humidity and cooling power showed the same conditions with the temperature.

3. Investigations of the living conditions in field positions.

As we had a little experience of living in field positions, we intended to examine the living conditions in many positions and to take hygienic lead.

Procedure. We studied its environment, air conditioning etc. and taught how to settle and build lavatories or drainage.

Thus we developed gradually hygienic interest by these examples and teachings in actual improvement gained after observation and study.

4. Elimination of carbon monoxide gas developing while fighting in a cave.

Methods. We studied how to eliminate carbon monoxide gas developed by firing of machine gun and others. Therefore we measured CO concentration in cases of loopholes let open or shut while firing continues and also observed influence on little birds previously settled.

Results. Generally speaking the faster we fire, the more carbon monoxide gas developed but never became over 0.2%, because by firing the fresh air came into the room through the loopholes and gave an impetus to ventilation.

IV. Study regarding efficiency of soldiers work.

1. Suggestions about investigation of mental efficiency of group as unit.

Purpose. By this investigation we intended to grasp the mental strength of soldiers at the beginning of their enlistment and to make it a supplementary method to bringing up of healthy soldiers.

*ENCLOSURE (B), continued*

Methods. We simplified the method of investigation of mental efficiency devised by the psychiatry department, the Imperial Univ. of Tokyo, and used to examine 6000 new soldiers.

Results. We devised the more simplified methods, named No. 303. This was also used to examine several forces. We find by means of this examination many feeble minded soldiers who made a record of poorer than 10 mark when the full mark is 30.

## 2. Study about soldiers' fatigue.

Purpose. We tried to find a good method of judging soldiers fatigue.

Methods. After physical actions such as marching or other soldiers' work we examined the Donagio's reaction with 50 men.

Result. We find that the reaction is of no use for our army.

## 3. Simplified method of physical examination.

Formerly we judged physical strength by the distance of walking with a 120 kilogram burden. So we made this as standard and researched the correlation between this result and those of different physical examinations.

Results. We acknowledged that it is best to judge from the time required in running of 200 meters with a 50 kilogram burden.

## 4. Study about burdens.

Purpose. In order to promote the efficiency of marching we studied about the most fitting weight of burden and its bearing method.

Methods. At first we measured the oxygen consumption in cases of walking with burdens of 20%, 25%, 30%, 35%, 40%, 45%, and 50%, of weight.

By this experiment we know that the case of 40% is the best burden.

The second time we measured also the O consumption by different methods of carrying a burden of 40% of weight.

This time we find that the closer the center of gravity of the burden comes to our body and the higher it lies the more efficient it is.

## 5. Study regarding climbing.

Purpose. To know the most efficient method of climbing high mountains and steep slopes.

Procedure. For mountaineering we selected Mt. Fuji and Mt. Yatsugadake and for slope climbing we use a escalator. Here we measured also oxygen consumption.

## ENCLOSURE (B), continued

## Results.

- (1) The burden should be under 35% of body weight.
- (2) The center of its gravity as low as possible.
- (3) Legs fasten.
- (4) Better not to take lodging above 3000 meters high.

6. Study of hygiene of mechanized forces.

To know the characteristics of working in mechanized forces and to promote its efficiency we made the following investigations:

(1) We made an investigation of mental efficiency, of character, psychological experiment, and physical measuring about chariot men. Thus we sought the correlation between these results to those of firing, managing, and of total records made after termination of education. But to our sorrow we cannot find a noticeable relation between them.

(2) Examined some trial manufacture of electric clothes, anti-heat undershirts and cap, avoid the heat and cold in chariot.

(3) Measured the energy required by soldiers working in the mechanized force and made a table out of this.

7. Study of the efficiency of the different arms of the army.

For reference to the soldier training we measured the intensity of different arms.

Methods. We gathered expiratory air in Douglas's bag while his actions we analysed by means of Haldane-Koizumi's method and calculated consumed calorie out of respiratory metabolism.

This result is used as a table of efficiency and as material for education.

\* \* \* \* \*

Part Two  
STUDIES ON COMMUNICABLE DISEASES

I. Prevention of malaria.1. Investigations of malaria mosquitoes.

To promote the knowledge of the medical officers about malaria prevention, illustrated tables for the anopheline identification had been prepared. These tables were all burnt to ashes before distribution.

2. Protection measures against mosquitoes and the studies of anti-mosquitoes and the studies of anti-mosquito chemicals.



## ENCLOSURE (B), continued

## a. Anti-larvae chemicals.

Phenothiazine and parisgreen are reported to be more effective than the infusion of tobacco leaves (about 20%) and the feces of the horse.

## b. Anti-mosquito liquid.

Anti-mosquito liquid we made proved effective about 6 to 8 hours after application, and has been used by the Army at large.

3. Cultivation of malaria plasmodia.

Kept in the refrigerator, birds-malaria plasmodia in the defibrinated blood of infected birds proved to be alive about 5 days.

4. Prophylactic use of malaria specifica.

According to the statistical studies of oral prophylactic measures done by the army in the field, CHININUM HYDROCHLORICUM, taken 0.2 gram every day, seemed to be able to reduce the cases of manifest malaria infection by 30 to 50%. But this observation, being based on the individual reports of soldiers, may lack in the exactness of laboratory experiment.

Combined application of atebaine and plasmochin with chinine, seemed to be more effective, but not having sufficient cases, it cannot be assured.

Studies on the improvement of vaccines.1. Dry vaccine.

Typhoid and 6 other kinds of vaccine were prepared dry and the virulence was reduced to 1/20 of the ordinary liquid vaccine, where the growth of immune body was proved better.

Adopting the method of Dr. Miyagawa, Professor of the Tokyo Imperial University, dry vaccine was prepared by drying, in lower temperature, the bacterial emulsion which was made by adding double quantity of glucose.

The period of observation is not long enough to assure the prophylactic effect on the soldiers.

Kinds of dry vaccine prepared are as follows:

- (1) Typhoid Para A & B mixed vaccine
- (2) Typhoid vaccine
- (3) Paratyphoid A vaccine
- (4) Paratyphoid B vaccine
- (5) Cholera Vaccine
- (6) Plague vaccine
- (7) Epidemic cerebrospinal meningitis vaccine
- (8) Typhus vaccine
- (9) Tuberculosis vaccine
- (10) Smallpox vaccine
- (11) Wound infection vaccine (Tetanus and gas gangrene)

## ENCLOSURE (B), continued

2. Dry B.C.G.

Emulsion of B.C.G. in 5% lactose solution, will be frozen and dried in vacuum.

This was proved effective about 5 months, while the B.C.G. in liquid form will reduce its antigenicity within 7 days. Tuberculin reaction on both animal and human bodies showed this preparation not inferior to the fresh prepared B.C.G.

3. Dry smallpox vaccine.

Glycerin vaccine used hither to has been expected effective only 2 months after manufacture.

To prolong the period of preservation, 0.1% trypanflavin solution was added to the vaccine and dried after freezing.

No change was seen in quality and the period of preservation was prolonged to 1 to 2 years at least.

4. Dry gas gangrene vaccine (Aluminous toxoid).

Applying the method of Dr. Hosoya, Professor of the Tokyo Imperial University, the liver-liver-Bouillon culture was changed aluminous toxoid and was dried in a vacuum.

No uncomfortable reaction was seen and the antibody was proved to have been well produced.

This preparation was used only in certain areas of the field and the effect on the inoculated soldiers has not been reported.

5. Typhus vaccine.

We could not succeed until today, in preparing a large amount of typhus vaccine made of *Rickettsia prowazeki*, while *Rickettsia manchuriae* vaccine was easily prepared by utilizing the lung (mice) and peritoneal tissue. Lately, repetition of culture 7 generations from egg to egg brought us success, in getting good amount of *R. prowazeki*.

0.1 to 0.2 cc of Blood of an infected guineapig will be injected into the yolk sack of the egg which has been incubated at 37°C for 7 days. *R. prowazeki* will be rarely found in the first egg, and with the repetition of culture it will increase its quantity.

Yolk sack, chorioalantois membrane and foetus (excluding eyeblub, bill, wing and leg) will be measured and ground, then by adding physiological saline solution which contains 0.1% formalin and 0.3% carbolic acid, 5% emulsion of the tissue will be prepared.

Centrifugalized at 3000 rot. per minute this emulsion will produce the upper clear layer which is to be used as vaccine.

Dry vaccine will be prepared.

Yolk sack, chorioalantois membrane and foetus will be taken out and the same amount of physiological saline solution with 0.2% formalin will be added, then ground to gruel and centrifugalized.

## ENCLOSURE (B), continued

Upper clear layer will be mixed with glucose and dried.

This preparation shows distinguished antigenicity in animal-examination and its period of preservation will be 2 to 3 years, while in the liquid form can be preserved only 1 year in a dark, cool place. Having had no epidemic of typhus among us, we have had no chance of assuring the effect.

### III. Other miscellaneous studies.

#### 1. Tuberculous bacillus.

With the aim to detect open tuberculous patients in the Army, the following researches have been tried.

##### a. Comparative studies of culture media.

Lowenstein, Petroff and other culture media have been studied and Oka-Katakura culture medium was proved to be the best. Oka-Katakura culture medium:

I solution	$\text{KH}_2\text{PO}_4$	5.0 gram
	$\text{Na}_2\text{HPO}_4$	5.0 gram
	Ajinomoto	10.0 gram
	Aq. dest.	1000.0 gram

warmed 30 minutes at 100°C.

I solution	100.0 cc
glycerin	6.0 cc
2% malachite green	6.0 cc
Egg (whole eggs 4, yolk 1)	200.0 cc

Distributed to the test tubes and sterilized on first day at 85°C 40 min., 2nd and 3rd day at 80°C 40 min.

##### b. Substitute of tuberculous bacillus culture medium.

Shortage of eggs compelled us to look for some other material which could be used in its place.

Infusion of soya beans was found to be usable, though a little inferior to an egg itself.

Colonel Masuda succeeded in separating the tuberculous bacilli from the patient's sputum, using the medium composed of water solution with serum (10%) and glycerin (5%). This cannot be applied for the successive culture.

##### c. Non-pathogenic acid-fast bacteria in sputum.

In certain examinations of 1000 soldiers we found 18 strains of acid-fast bacteria, of which 12 were proved non-pathogenic.

##### d. Simple method for collection of tuberculous bacilli in sputum.

Sputum will be mixed with spit and will be incubated about 5 hours at 37°C (autolysis) to produce sediment at the bottom. This sediment will be used for microscopic examination, even if a little inferior to that made by ordinary method of bacteria collection.



## ENCLOSURE (B), continued

2. Culture media for Salmonella.

Because of the difficulty in getting bile, we tried to use 1% glucose solution (in cases when we have no glucose, sterilized water only can be used also), by adding the blood to be examined 1/2 to 1/3 volume of the solution (or sterilized water).

This medium will be well used, though a little inferior to the ordinary bile medium.

3. Cholera vibrio.

Differentiation of cholera vibrio from the non-pathogenic vibrios has been studied and Pfeiffers phenomenon is concluded to be the only method for this purpose.

4. Penicillin.

By the experiment to use infusion of soya beans in place of glucose and pepton in Zapeck-Dox culture medium, we could presume that the amount of glucose and pepton in this medium could be reduced. But this experiment was given up this August.

Raw penicillin made of this medium showed one time about 500 times as much anti-staphylococcus value as that of the ordinary media.

IV. Studies on water supply apparatus.1. Materials for filtration tubes and burning process of porcelain filter.

Diatom earth is the main component of the filtration tubes. The quality of the diatom earth in respect to fitness for filtration tubes, will be determined by the quantity of melosira contained.

We made comparative studies of the diatom earth produced in various districts of Japan and found well qualified earth in Hokkaido and Korea.

Mixture of Diatom earth (70%), clay (20%), and orthoclase (5-10%) makes the most efficient filtration tubes.

Burning must be done at 1160°C at least.

2. Examination of filtration tubes, their preservation and chemical treatment.

Inspection and measurement will be followed by an examination of the ability for filtration of water and detention of bacteria (*B. prodigiosus*).

Water bubble examination must be done also, by sending the air at pressure of 1 kg. from inside the tube.

Explanation. The bubbles coming out of the surface will indicate the fissures or the defects in the wall of the filter.

As a result of these examinations, 45% of the products was used to be disqualified. To prevent the growth of mould on the surface of the tube, treatment by  $\text{CaCl}_2$  solution with carbolic acid was applied.

*ENCLOSURE (B), continued*3. Handling of filters.

Kinds of filters now in use in the Army are as follows:

<u>Type</u>	<u>Size &amp; Conveyance</u>	<u>Capacity p.h.</u>	<u>Weight</u>	<u>Distribution</u>
A.	20 Filtration sets Truck	36 kiloliter	5 tons	4 to each Divs.
B.	2 Boxes Transport vehicle	1000 liter	100 kgram	1 to each battalion
C.	2 Boxes Horseback	700 liter	70 kgram	1 to each company
D.	1 Box Human back	100 liter	20 kgram	1 to each section
E.	Personal equipment	20 liter	5 kgram	1 to each squad

Filtration waste, deposited on the surface of the tube, will be brushed off for 3 to 5 minutes after each filtration process, so as to prevent the lowering of capacity of filtration.

As the substitute for the metal part of the filtrations set, various kinds of wood have been applied in vain.

4. Instruments for conveying water. (water distribution in the field)

For transportation by trucks, a water bug (capacity 180 liter) or a wooden vessel, and for transportation by personnel a rucksack, bamboo stem and other various kinds of bottles were used.

Waterbugs and other vessels were furnished with nozzles through which the water was distributed to the soldiers.

In certain areas, to provide many soldiers with water at one time, 2 meter long bamboo stems with 10 nozzles were applied.

Studies on disinfection processes in the field.1. Field disinfection vehicle.

Composed of 2 trucks - A and B.

A Truck

Water vessel (capacity 1 cubic meter)  
boiler, turbin pump for spray shower.  
disinfection bug  
hot air producer (run by gasoline)

B Truck

Process of disinfection

for personnel (1) disinfection  
(2) bathing  
for clothing (3) steam sterilization  
(dried by hot air)  
for horses and  
vehicles (1) medicament disinfection

Capacity 100 personnel p.h. (in summer, 200 p.h.)

2. The effect of substitute of disinfection chemicals.

Nothing to be especially reported. 2.5% lysol, 5% carbolic acid, milk of lime, 1% formalin, and 0.1% corrosive sublimate have been applied in the usual way.

## ENCLOSURE (B), continued

3. Atomizing and vaporizing disinfection.a. Field atomizer (nothing new)

Pump is fixed to the vessel and run by 2 personnel, as the disinfectant lysol and carbolic acid will be used. (This is contained in the Boeeki-kyuu-suibu-ikyuu set for the prevention of communicable diseases in the field, which is provided to the G.H.I. already.)

b. Steam sterilization.

Field sterilizer is planned for this purpose. Iron pots, drums cans and other steaming baskets were used in the field.

4. Formaldehyde.

Nothing has been practically planned. Before the war formaldehyde was used for the disinfection of rooms, books and clothing. Sometimes it was used as 1% water solution also for the disinfection of rifles and other utensils.

5. Insecticide. (D.D.T. manufacture and examination of D.D.T.)

In Japan D.D.T. was first made by the pharmacological department of the Army Medical Academy and later was manufactured by the Dai-ich-seiyaku-kaisha, trade mark of which is P.

The examination was done in respect to the insecticidal effect of D.D.T. powder for lice and flies.

10 to 20 minutes after exposure to the powder, insects showed certain changes in movement and 2 to 3 hours later or sometimes 5 to 6 hours later all of them were killed.

Concerning the mosquitocide effect we have had no experiment. To economize, we tried to use a mixture composed of 10% of D.D.T. and 90% of magnesium carbonate or magnesia usta. Since, by governmental order the necessary materials for this preparation were directed to meet the other urgent demands of war, both manufacture and experiment were given up.

VI. Miscellaneous.1. Dry serum (convenient for transportation and can be preserved 2 to 3 years.)

Applying the lyophile process of Prof. Flosdorf and Mudd, U.S.A., we succeeded in drying the blood type test serum, bacteriological diagnostic serum, serum for the treatment, and plasma for the transfusion.

2. Examination of water.

We assumed 3 ways for the examination of water in the fields.

a. Immediate water test.

This test is only a simple toxicological examination for HCN, HgCl<sub>2</sub>, and As. Test paper in the set reacts to a toxicant of a density of 1/100,000 and will be preserved 1 year.



## ENCLOSURE (B), continued

## b. Field water test.

Simple examination for the temperature of the air and water, turbidity, chlorine ion, ammonium, nitric acid, nitrous acid, hardness of water and isolated chlorine. The set for this test will contain.

Object to be examinedMaterials for examination

CL	Silver chromate powder, comparator
Ammonium	Nessler's reagent, Seignette salt powder
Nitrous acid	Gries-Romin reagent,
Nitric acid	Metal magnesia
Hardness	Medical soap
Isolated chlorine	Orthotoluidine solution

## c. Thorough (precise) water test.

To secure permanent water resources all kinds of examinations of the quality and quantity of water including chemical and bacteriological examination must be done.

Materials for this examination are contained in the "Booeeki-kyuu-suibu-ikyuu" which is already provided to the G.H.I.

3. Studies on the water-supply on Iwo jima island.

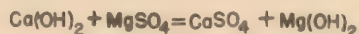
Having no drinking water resources on Iwo jima, the Army was obliged to drink the mineral water, the magnesia in which cause many cases of diarrhoea.

Titan yellow was used for the quantitative analysis of magnesia.

To get rid of Mg the following methods were applied:

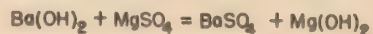
## a. Lime method.

A certain amount of quick lime, equivalent to that of Mg in the water, will be added to the water and then the water will be filtered.



## b. Baryta water method

Either Mg or  $\text{SO}_4$  or both will be taken out. Only the medical officers are allowed to use this method, because of the toxicity of Ba to the human body.



## c. Lime and Baryta water method.

## a. and b. combined.

## d. Others.

About 5 to 6 times quantity of rain water will be added to the mineral water.

## ENCLOSURE (B), continued

We assume that these methods were applied in the island and must have been useful, but the Army there having been annihilated, we have no exact knowledge about the result.

4. Studies on the substitute media.

The want of food caused a shortage of materials for media.

a. As a substitute for bouillon, the residual liquid produced by the process of "Tofu" manufacture proved to be amply useful.

b. Infusion of bones and skins of fishes (10-20%) will be also useful.

\* \* \* \* \*

Part Three  
STUDIES IN PATHOLOGICAL FIELDS

1. Field Autopsy Car

A field autopsy car was built for the purpose of carrying out autopsies in the field in good conditions. It was planned in 1937 and finished in 1939.

Only one set was made, and sent to Middle China, but no report concerning its ability was obtained. The autopsy car consisted of two trucks.

The first car is for tissue research, simple bacteriological and biochemical research, and to this car a tent is pitched to carry out autopsies under. The second car used to transport various stock for autopsies as well as collected materials. About 200 autopsies can be done without any supply.

2. Pathology of War Injuries.

The following cases of war injuries which were examined in a certain period after the injury, are of interest.

(1) Brain shot.

Out of 30 brain injuries examined, three died due to injuries other than head injuries. Brain injuries were found as the direct cause of death in the rest.

Table 1. shows the outline of the observation.

(2) Spinal cord lesion and renal stone.

Much attention was paid by workers in this field to the combination of kidney stone with spinal injury or with fracture of femur and with head injury (Bastian, Smith, Lediard, Bick, Oliver, Muller). We found also 24 cases (68%) out of 35 autopsy cases of spinal cord lesion.

(a) The regional relation of spinal cord lesion to the kind of ammunition.

The lesion (a considerable number of its cases was caused by bullets) occurs mainly in thoracic portion and otherwise in the lumbal portion.

## ENCLOSURE (B), continued

## (b) Renal stone and renal abscess.

We observed 24 cases out of 35, where urinary calculus exists microscopically in urinary passage. The portion of its existence is as follows:

pelvis of kidney	urether	urinary bladder	total
+	+	+	9
+	-	+	12
-	+	+	1
-	-	+	2

The quality of calculus varies and the size is from a grain of rice to renal gravel, but sometimes larger than the tip of the thumb. It must be taken into account that we had 23 cases of renal abscess out of 24 cases of nephrolithiasis observed.

## (c) Histological consideration in the formation of renal stone.

There are so many different views that it is difficult to determine the cause of formation of stone in urinary, especially in renal passages. In 24 of the 35 cases, calculus was microscopically observed, being further recognized histologically as deposit of lime in renal parenchym.

We had 20 cases of spinal cord shot as the direct cause of death. Examination of the location and the grade of injuries, in addition to the tracing of advancement of degeneration leads to the hodological studies.

(3) Lung shot.

We studied 26 cases of lung shot (period maxim. 1145 days, min. 59 days, average 465 days after injuries).

According to past literature it had been mainly discussed in connection with the causes of death and histological studies in shot canal. But it is necessary in Japan to research its influences upon tuberculosis.

(a) The canal of lung shot usually heals well to a scar except for particular complications and we recognized no complete regeneration alveoli in the scar which Borst had once reported.

(b) The abortus is enclosed with thick connective tissues and divided into two parts, one sticking firmly together and the other packed by capsule. The capsule is divided histologically into three strata and rarely causes purulent changes.

(c) In 12 of 26 cases of lung shot we recognized tubercular changes in lung parenchym.

(d) We observe rarely that tuberculosis reappears directly following lung shot. The correlation of lung shot with lung tuberculosis may be very close to the state of existed tuberculosis.



## ENCLOSURE (B), continued

(e) On the contrary there were 7 cases of formation and reappearance of tuberculosis indirectly caused by lung shot, and 6 cases of them complicated the empyema. It should be noted that "circulus vitiosus" was found between the chronical empyema and the lung tuberculosis. (Literatural Societatis Pathologicae Japonica liber 33, 1942)

(4) Heart shot

It is evident that a soldier whose heart is shot dies instantly or very rarely survives. We had 3 rare cases of this kind and found in one of them a piece of broken shell remaining in the heart muscle.

case number	1	2	3
days of process	24	38	1023
kind of shot wounds	direct pericardial shot	indirect pericardial shot a piece of broken shell remained beside pericardium	direct heart shot a piece of broken shell remained in heart muscle
pericardium	1. purulent pericarditis 2. purulent-blooding fluid 500 cc 3. defect as large as soybean	1. fibrinous pericarditis 2. adhesion between pericardium and pleura	1. shot wound of pericardium (?) 2. remarkable thickening of pericardium
heart	1. purulent pericarditis 2. atrophy and vacolde generation of heart muscle	1. fibrinous thickening of pericardium 2. atrophy of heart muscle 3. intima not abnormal	1. thickening of heart-pericardium 2. little atrophy of heart muscle 3. cicatrization and lymphcellular infiltration around broken shell 4. intima not abnormally

## ENCLOSURE (B), continued

(5) Aneurysm

Lieutenant-Colonel Fukuda studied aneurysm in detail clinically and also pathologically. Outline of 6 section cases of them are as follows:

case number	days of process	nature of aneurysm	size of aneurysm	wall of aneurysm	cause of aneurysm
1	253	traumatic aneurysm (aorta abdominalis)	as big as a fist	connective tissue	rupture of aneurysm
2	196	traumatic aneurysm (a. axillaris)	as big as a fist	connective tissue	brain-embolism
3	86	traumatic aneurysm (a. vertebralis)	as big as a hens' egg	connective tissue	rupture of aneurysm
4	165	traumatic aneurysm (a. subclavia)	as large as head of foetus	connective tissue	haemorrhage after operation (?)
5	126	traumatic aneurysm (a. subclavia)	as big as a hens' egg	connective tissue	rupture of aneurysm
6	238	traumatic aneurysm (aorta thoracica)	as large as man's head	connective tissue	weakness

## ENCLOSURE (B), continued

(6) Intestines

Most of intestinal injuries are found in cases of instantaneous death on the battlefield but we have several cases of healed liver, spleen and kidney shot by cicatrization.

case number	1	2	3
days of process	253	627	
clinical diagnosis	penetrative gunshot wound of thorax	penetrative gunshot wound of abdomen	scarlet fever
case of death	rupture of abdominal aneurysm	death through sickness	scarlet fever
part of shot wound	left lobe	left lobe	between left and right lobe
histological state of liver	remarkable cicatrization of shot wound, embolism of gall in cicatrized tissue	remarkable cicatrization of shot wound	cicatrization of shot wound infiltration of neutro- and eosinophilous leucocyte in Glisson's sheath

(7) Legs and arms.

We have been studying the end of amputated limbs or pseudoarthros, neuroma at the amputated nerve ending and the recovery of nerve function, but it is regrettable that many materials were lost during our study.



case number	days of process	cause of death	purulent inflammation or abscess of brain substance	purulent meningitis	purulent inflammation
1	40	purulent inflammation of brain	+	+	+
2	81	purulent inflammation of brain	+	+	+
3	149	purulent inflammation of brain	+	+	+
4	113	brain abscess	+		+
5	228	brain abscess	+	+	+
6	23	brain abscess	+	+	+
7	176	brain abscess	+		+
8	266	brain abscess	+	+	+
9	317	brain abscess	+	+	+
10	116	brain abscess	+	-	-
11	141	purulent inflam. and hemorrhage of brain	+	+	hemorrhage +
12	108	purulent inflam. of brain	+	+	+
13	178	purulent inflam. of brain	+	+	+
14	338	brain abscess	+	+	+
15	387	purulent inflam. of brain	+	+	+
16	365	purulent inflam. of brain	+	-	-
17	197	purulent inflam. of brain	+	+	-
18	91	purulent inflam. of brain	+	+	+
19	206	purulent inflam. of brain	+	+	+
20	343	purulent inflam. of brain	+	+	-
21	444	brain abscess	+	+	-
22	91	softening of brain substance	+	+	+
23	213	purulent inflam. of brain	+	+	+
24	387	purulent inflam. of brain	+	+	+
25	135	purulent inflam. of brain	+	+	-
26	123	purulent inflam. of brain	+	+	-
27	56	brain abscess	+	-	-
28	206	purulent inflam. (pleura. bladder kidney)	+	-	-
29	998	Miliary tuberculosis	+	-	-
30	553	gas phlegmone	+	-	-

## ENCLOSURE (B), continued

### 3. Pathological Studies of Frostbite.

We did research on the pathology and treatment of frostbite of soldiers in the cold-regions. The first research on tissue was attempted in connection with amputated frost-bitten limbs of soldiers, but no result was obtained from it, and then basic experiment was made under a unique condition.

We put a rabbit in a small glass chamber and placed dry ice directly on her hind leg for 30 minutes. The affected part turned into anemic pallor, then after 3 hours changed to congestive flush and edematic swelling. And after 12 to 24 hours it became dark purple and necrotic. After 72 hours the demarcation line was formed at the place which was nearer to the heart than to the affected part. Thereafter the necrosis progressed and bone was exposed and amputated along the demarcation-line. When the affected part was irradiated repeatedly by ultra-red rays, the demarcation line moved to periphery and necrosis become small and light. These facts showed that the formation of necrosis was due not only to the death of cells through the cold, but to cramp of the vessels.

### 4. Pathological Study of Burns.

The problem of burns is already well-known, but recent air-raids and bombardment entailed a rapid increase in patients, and consequently more elaborate study became necessary for their treatment.

We have studied with the help of Dr. Fukuda (Professor of Surgery, Tokyo Imperial University).

First fundamental pathological change of tissue is the intoxication changes of vessels and all other changes in each organ are considered as secondary changes.

Capillary changes are collapse, rise of permeability for the plasma, leakage of red blood corpuscles and consequently pericapillary oedema which contains a great deal of albumen. Therefore, the space between capillary and parenchymatous cells is magnified. The changes of small vessels are oedematic swelling of the wall of vessels, myolysis, leakage of red blood corpuscles, formation of toxical thrombus.

The perivascular oedema and the wide space between capillaries and parenchymatous cells bring about anaemia of tissue and then necrobiosis of parenchymatous cells and their disappearance.

First organic changes is encephalitis, hepatitis and nephrosis. Myolysis of myocard is a post change. Generally these changes of burns very much resembles the sun stroke and consequently we consider sunstroke as the burning of organs. (Societatis pathologicae Japonicae, Liber 33, 1943).

### 5. Pathological Studies of War Diseases.

Kala-azar: The disease, Kala-azar, which could hitherto rarely be observed outside limited areas, has been observed in abundance since the Chinese affair. According to the pathological studies on twenty-five cases at the Pathological Faculty, A.M.S., what was found hardly differed in general form the reports by Marchand, Ledingham, and Christophers. Although it was clear that in many cases the causes of death were complications, it was necessary to re-examine the causes of death of those who died apparently due to marasmus. It is worth paying special attention to the fact that in these cases, intense regressive degenerations in the liver involving wide-spread degeneration, necrosis and desolation of liver cells were observed. However, it has not been clarified as



## ENCLOSURE (B), continued

yet whether such degenerations were due to chronic poisoning of antimony preparations or based on the toxic action of *Leishmania donovani*. (Literature: *Societatis Pathologicae Japonicae Liber 33*, 1942)

Malaria: Many valuable results have been obtained from pathological investigations in Japan, the number of which since the outset of World War II has increased in a leap to a very high figure, and even many cases of malaria tropica have popped out to be ours for the observing. According to the studies made by Watanabe and Tauchi abroad, whose findings do not vary much from the descriptions of past literature, it should be noted that in the field of the brain remarkable cases of typical malaria granulom of Durck, Prof. Wake and others were few, and fibrinous degeneration of coat of vessels and "Entmarkungsherd", mainly in the area of occiput, were observed. According to recent findings in the domain of pathology, it is suggested that causes of death in malaria cases be reexamined in the light of identification, distribution and morphology of plasmodium in corpses. *Journal of Japanese Army medical Corps* 344. 1942, 359. 1943.

Malnutrition: In view of the fact that many cases of a disease with a kind of marasmus as its main symptom were experienced during the Chinese affair, our faculties have made researches along the line of determining its nature and finding out counter-measures against the evils of the disease.

Pathologically speaking, most cases of so-called malnutrition are due to intestinal diseases caused by amoebic and bacterial dysentery and trichomonas. According to the writer's way of classification of the disease basing on its genetic factors, it can be divided into two groups, one with ulcers in the intestine and the other without, the former being further sub-divided from the histological viewpoint of ulcers into one with new and slight ulcers and one with serious ulcers. In bacteriological studies we did identify neither dysenteric bacilli nor entamoeba.

Since the War of Great Eastern Asia, this disease has been observed in southern territories, and malaria has been taken for an important, fundamental disease for malnutrition, but seeing pathologically, it is regarded as a type of disease with total atrophy based on nutrition failure. However, its exact pathological nature is yet unknown.

✓ 6. Pathological Studies on Sudden Death.

(1) Studies on the heart tissues in various diseases.

We found disturbances of the heart, especially cell infiltration in the heart muscles, in cases of the sudden death. We investigated about 380 autopsy cases, 1938-40, and concluded as follows:

(a) In the cases of tuberculosis, one finds often lymphoid cell infiltration and it does not form an intermediate link to the tuberculous tubercle. The Aschoffs tubercle or its similar granuloma changes directly to the tuberculous tissues.

(b) In the cases of infectious diseases except tuberculosis and of some others:

(i) In the cases of cholera, scarlet fever, Kala-azar, pneumonia and uremia, one finds the infiltration of the neutrophile or eosinophile leucocytes, but they are not of an enormous grade.

(ii) Round cells, especially lymphatic cells, are often found and peculiarly in the case of well conditioned men.



## ENCLOSURE (B), continued

(iii) We found the typical Aschoff's tubercles in one case of rheumatism, entirely similar granuloma in one of uremia, and regarding scarlet fever it differed a little. The granuloma in the case of Kala-azar is without connective tissue, so it is quantitatively different from that of rheumatism.

(2) Studies on the cause of sudden death.

Studies on sudden death in the army differ from that of the old forensic medicine and offer many interesting questions to studies on the constitution etc. According to the Japanese Army statistics of accidental death, so-called sudden deaths numbered 10 cases in 1937 and 12 cases in 1938. We had 27 autopsy cases, and 10 of them died in bed and 7 died during or shortly after heavy work. Autopsy shows that 10 cases had disturbances of the heart, which were mainly acute or chronic inflammation of the heart muscles, 3 cases of brain lesion, and 2 of the endocrine organ lesions. Other 12 cases had no remarkable changes except persistent thymus. (Literature: Journal of Japanese Army Medical Corps, 1943; Societatis Pathologicae Japonicae Liber 30, 31, 1940, 1941.)

7. Studies on Tuberculosis.

(1) Pathological study of t.b. in army.

The pathological studies of tuberculosis in army have to be linked with matters, namely initial and reinfection, especially because there are many new recruits who give a negative result in Mantoux-reaction.

It is so important a problem to study the modes of infection, frequency, and degree or type of disease etc. that we have collected as many materials as possible.

Meanwhile we also tried to get a collection of the cases in primary pulmonary comple, in which an investigation about the frequency and type of illness was made in detail.

But in the course of our study, all materials were burned. Accordingly we could not arrive at a conclusion, but merely followed the following two important guesses:

(a) There are many tuberculous cases of perfectly chronic processes.

(b) Relatively many cases of infantile tuberculous type in the soldiers, is developed from a primary tuberculous foci.

(2) Treatment and histopathological figures.

As soon as a few new prophylaxes or medicines were prepared in our scientific circle, we tried to determine its effect through animal experiments, but no new information.

But recently, as a precautionary measure serotherapy seems to be the best one, and in the initial stage of tuberculosis some chemotherapeutics may be useful.

While for more serious cases than ordinary ones, only surgical application is responsible.

## ENCLOSURE (B), continued

8. Patho-Anatomical Studies on Kashin-Beck Disease.

About one hundred years ago Kashin-Beck disease was discovered in Siberia. For more than ten years it has been discovered without member in Manchuria too. Prof. Ogata at Tokyo Imperial University has turned his attention to the relation between this disease and abnormality of internal secretion in the salivary gland, and to drinking water in an aetiological sense. Also he expounds that there may be a fear of suffering from the sickness if a Japanese stays for a long time in Manchuria; therefore we have helped him in the work. Kashin-Beck diseases are epidemics which are distributed from areas neighboring the southern part of Lake Baikal through Sanga to south-east Manchuria, especially densely (60-80%) all over Toohendo, further more extended to north Korea.

The variation appears in the joints in boyhood, and halts the condition for life of which grows less serious at the age of about twenty years. In initial stage there are the subjective symptoms such as a slight articular pain.

In serious cases the variations appear in all joints, in most serious cases patients become pygmy. These are "Arthritis deformant" in boyhood from the patho-anatomical point of view, large ulceration in a cartilage and "Osteoporosis" in a epiphysis.

On this etiology there are conflicting theories, vitamin - A deficiency (Takamori), iron in drinking water (Hieda), hormone disturbance (Ogata). As these theories, except Ogata's, are concluded in outline, we have been studying together with Prof. Ogata. Prof. Ogata pays attention to the manifest desolation in intercalary portion of parotid salivary gland which secretes hormones that the dissolution of salivary gland may be due to some organism in drinking water.

9. Typhoid Fever.

Typhoid fever is one of the most frequent infectious diseases in Japan, even in peace time.

In this war many victims of typhoid fever had high mortality and the characteristic features of so-called "war typhoid fever" in Japanese Army.

It is a very interesting and important problem to study the cause of death, modes of infection and immunity, in order to prevent and cure this disease. In Japan there is a foundation of Keitokukai, as an institute for typhoid fever.

Many explorations about its pathological anatomy are mainly made by the above mentioned laboratory and by Prof. Suzuki, in the pathological laboratory of Tokyo Imperial University.

Our most important purpose lies in systematic studying, with the advantage of course of illness, of all the non-specific lesions in various viscerae and tissues, and at the same time, in one which has a connection with the searching for the histogenesis about the so-called "Typhoma".

According to the results of patho-histological investigation on about 100 cases of typhoid fever, the typhoma may be, in early stages recognizable in liver, spleen, bone-marrow, lymphatic glands, kidney and lung etc.

With the progress of the course of the disease, the typhoma shows various alterations, for example, degenerative and reparative ones.

All typhomae in reconvalescent stadium seem to disappear completely except in the spleen, in which a frail granulation tissue is left.



## ENCLOSURE (B), continued

It is also a very interesting question to study the relation between typhoma formation and immunity, but obscure as yet experimental pathology.

About the modes of infection we have no certain conclusion, but recently we had some rare cases, which had no lesions in the intestinal tract.

There is ample scope for further investigation about the state of bacteriological localisation in various tissues.

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Part Four  
STUDIES OF INTERNAL MEDICINE

1. Prevention of Tuberculosis by Means of B.C.G.

(a) On inoculating persons with anamnesis of tuberculosis and tubercular animals with B.C.G., it was found that their sensibility was to the same degree as that shown in the case of the tuberculin test now in widespread use (Kosaka, Journal of the Army Medical Corps No. 374 - Hereafter abbreviated J.A.M.C.). Hence it can safely be said that B.C.G. inoculation is not dangerous without previous tuberculin test.

(b) By means of the time of appearance and disappearance of erythema in tuberculin intracutaneous reaction and the highest stimulation value of tuberculin allergy, it can be determined whether positive conversion of tuberculin reaction is due to natural infection or B.C.G. inoculation (Kosaka, J.A.M.C. No. 375).

(c) In six month's observation of over 1,000 boy soldiers who were inoculated with B.C.G., it was ascertained that few of the inoculated group fell into tuberculosis, and that with comparatively good progress.

(d) B.C.G. is at present inoculated 0.04 milligram intracutaneously, although some recommend that B.C.G. should be inoculated 0.2 milligram subcutaneously on the armpit. Those inoculated on the armpit are, however, apt to be affected by by-effects, such as abscess.

2. Tuberculosis Therapy.

(a) Cepharantin. Effective to some extent against productive phthisis. Harmful to serious cases (Suzuki, Baba, J.A.M.C. No. 369).

(b) Promin. Effective to some extent. Causes haemolytic anaemia as by-effect when given per os.

(c) Rhodinic acid. Ineffective.

(d) Spirochaeta morsus muris. Ineffective against phthisis. Its trial use in the therapy of lymphatic tuberculosis, serosa tuberculosis and disseminated tuberculosis through circulation is now under consideration.

(e) X-ray therapy. Effective to some extent (Yoshida, J.A.M.C. No. 373).

(f) Cavern sucking therapy. Effective to some extent (Makadate, J.A.M.C. No. 365).



## ENCLOSURE (B), continued

(g) One-sided artificial pneumothorax in the case of complete adhesion of pleura on the other side may possibly cause serious disturbance in circulation (Koizumi, J.A.M.C. No. 373).

3. Malaria Therapy.

(a) Plasmodium collecting method and complementary combination reaction. Plasmodiums are collected in the following process:

Removal of blood platelets --- Formaline fixation --- Removal of leucocytes by centrifuge.

The complementary combination reaction with the alkaline extract of plasmodium thus collected as antigen is specific not only to malaria, but also to the plasmodium (Sasaki, Koyama, J.A.M.C. No. 358, 365, 366).

(b) "Antimalarien", i.e. 6-methoxy-8-3-diethylamino-2, 2-dimethylpropylaminoquinoline hydrochloride, is as effective as plasmochin, but somewhat less toxic than the latter. As more plasmochin was produced and supplied, "Antimalarien" ceased to be used (Sasaki, Koyama, J.A.M.C. No. 334).

(c) Of all therapies of malaria heretofore in use, the one with the least recidivation rate is a combined usage of quinine, atabrin and "Antimalarien". Simple and effective is the way of "a fortnight of quinine and plasmochin" (Sasaki, J.A.M.C. No. 355).

4. Wartime Nutrition Failure.

Wartime nutrition failure is the name given to groups of symptoms as a whole, which are based on malnutrition for a comparatively long period, and qualitative hunger, especially of proteins and fats, and in addition complicated by malaria, bacterial dysentery, amoebic dysentery and beri-beri, etc., it has such symptomatic features as emaciation, oedema, anaemia, diarrhoea, polyuria, and slow pulsation, and resists every therapy, making recovery from it all the more difficult. Therapies for the complications are to take vitamin B, liver preparations or raw cow's liver preparations.

5. Kala-azar.

(a) On examining liver function of Kala-azar patients, it was found out that the function of excreting "Azorbin-S" and "Congo red" fluctuates parallel to the sizes of liver and spleen tumors. (Kobayashi, J.A.M.C. No. 369).

(b) Antimony preparations were effective on those mice previously treated with alcohol in order to be easily infected by plasmodiums (Furukawa, J. A.M.C. No. 371).

6. Dengue-Fever.

(a) Observations on clinical statistics of dengue fever prevalent in Nagasaki in the summer, 1942 (Nagao, Ota, J.A.M.C. No. 359).

(b) Transitory plasmachytosis in reconvalescence stadium of dengue fever (Takahashi, J.A.M.C. No. 367).

7. Diseases of Circulatory Organs.

(a) Effect of regulation of venous pressure on nerves and hormones (Takahashi, J.A.M.C. No. 367).

## ENCLOSURE (B), continued

- (b) Irregular pulse with good prognosis (Takahashi, J.A.M.C. No. 354).
- (c) The so-called aeroneurosis (Osuzu, Toroi, J.A.M.C. No. 362).
- (d) Obturation of vena cava inf. (Yano, H.A.M.C. No. 362).

Note: Reports on the items with no reference have not been published, due to burning of manuscripts and memoranda, etc., making numerical data unavailable.

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Part Five  
STUDIES IN THE FIELD OF OTORHINOLOGY

Research Concerning Prevention of Sea-sickness and Air-sickness

by Col. K. Toda

(Otorhinolaryngological Department)

At present all sorts of medicine are used for means of preventing sea-sickness and air-sickness, but the effect is not only inaccurate, but also the duration time is temporary. Therefore they are just negative measures.

The functioning condition of the vestibule and the tension of the vegetative nervous system plays a very important part in developing sea-sickness and air-sickness, as is recognized by everyone today. We too, have made investigations on these points and have proved them to be correct.

The majority of those who are subject to sea-sickness and air-sickness show that they have a very sensitive vestibule and an over-tension vegetative nervous system. While on the other hand, the majority of those having absolute tolerance towards sea-sickness and air-sickness show that they have a low sensitive vestibule and a stable type vegetative nervous system tension.

According to this investigation, to those who are subject to sea-sickness and air-sickness, by lowering the sensitivity of the vestibule by positive means and by stabilizing the tensioning conditions of the vegetative nervous system, we were able to prove experimentally that the tolerance towards sea-sickness and air-sickness could be strengthened by positive means. Therefore there are three ways of lowering the sensitivity of the vestibule and stabilizing the over-tension of the vegetative nervous system. The three ways are as follows:

1. By giving exercises for a limited time and proscribed of rotating movements of the body near the semicircular canal (superior, posterior, lateral) and adding to this the jolting training.
2. Swing movements training for a limited time and prescribed.
3. Radiation of the middle brain (diencephalen) by X-ray. Each one of these three ways will lower the sensitivity of the vestibule and stabilize the tensed conditions of the vegetative nervous system of persons subject to sea-sickness and air-sickness. By it, we were



*ENCLOSURE (B), continued*

able to prove that they were able to acquire a high tolerance towards sea-sickness and air-sickness. We are confirmed that these were the most logical methods towards the prevention of sea-sickness and air-sickness.

Part Six  
STUDIES IN THE FIELD OF OPHTHALMOLOGY

1. Experimental research on the effect of some vitamins and medicaments on normal light judgment in white lower illumination.

In order to study the methods of strengthening the light-sense of a man of normal health, the examinations of influence upon normal light judgment under lower illumination were made with a man of normal health by means of either injections or dosing of various medicaments and vitamins, and the result are as follows.

The various chemicals and vitamins employed in this experiment do not give any remarkable influence upon the light sense, and slight influence was considered as the effect through the exercise.

2. Manufacture of a simplified quantitative table of examination of color senses.

Researches were made with the object of examining easily the degree of abnormality of color sense. The color charts were made in accordance with "Anomalskop" while on the other hand, color charts were made with pigment color, whose value is determined to be as similar as possible to spectrum color.

These charts were rectified by means of application to the man of unusual color sense, the degree of which was previously determined.

3. Experimental study of the function of accommodation and convergence by side-vision.

The researches were made in order to give the optico-physiological rationality to the arrangement of instruments used by aeroplanes, and to contribute to the safety of aeronautics, by eliminating the causes for aeronautical obstacles such as dizziness produced by head movements during action in attitude or advance flying.

The results are as follows:

The instruments used by aeroplanes are to be arranged within a sphere of vision of aviators extending 30 degrees each right and left, 20 degrees upward and 30 degrees downward with his root of nose in the center, and it is appropriate to install a concave sphere facing the aviator, those of most importance being placed near as straight forward and horizontal as possible, and these of less importance being by degree placed around the field of fixation.



## ENCLOSURE (B), continued

Part Seven  
DERMATO-UROLOGICAL STUDIES1. Studies of burn scar. Lt. Col. M. Hiraga.

(1) Keloid: We studied the nature of keloid histologically. The overgrowth of scar exists in the growth of the connective tissue, whose origin is the endothelial cells in the vessel walls. The degree is individually very different.

(2) Treatment: We used radium on the great keloid, and the dose averaged 20 to 50 miligram hours per 1 cm<sup>2</sup>. They were all cured in about 3 to 6 months. Other methods of treatment are to cut off the keloid, sew up and afterwards to irradiate with radium or the skin-transplantation (method of Thiersch, Krause or Filatow). We treated about 100 cases of burn scar in this way, and cured almost completely the disfigurement and the disturbance of movement.

2. Treatment of trichophytosis. Lt. Col. M. Hiraga.

Purpose: We wanted to see the results and mechanism of the various treatments, which have been hitherto used.

Method: The majority of the cases were trichophytia interdigitalis, and the local states are wet, crusted, erosive and purulent. The pain and itch are very severe. The medicaments are Tinct. Jod., Kal. permanganicum, Mercuriochrome, Methylenblue, Thymol, Rivanol, Kal. bichrom., Tar paste, Salicyl alcohol, Bioform etc.

Result: On the wet and erosive surface, we find that one of the most useful methods is the bath with the 5000X-20000X Kal. permangan.-solution. The surface becomes dry on the next day. To powder Bioform is also useful. On dried surface we used the following solution. Tinct. jod; 100.0 Thymel 2.0 Methylenblue 0.5 Acid. salicyl. 5.0 For the treatment of Trichophytosis the strong oxydating medicaments are most effective.

3. Studies of skin diseases caused by rays. Major I. Yumino.

Purpose: The author studied the photosensibilisation and purposed to prevent skin diseases caused by rays.

Method: Clinical studies of Porphyria congenita and of eczema solare and animal experiments of photosensibilisation caused by some plants (so-called Fagopyrism and Atriplicism).

Author studied physiologically, chemically and pathologically and especially on the porphyrin circulation, but is very influenced by liver function. The nature of Porphyria congenita and of Hydroa vacciniforme is different and they are other diseases.

In the body of the patient of Porphyria congenita, were great deal of uroporphyrin I, which is the cause of photosensibilisation, but other causes must be looked for.

## ENCLOSURE (B), continued

In eczema there was found not only the excretion of porphyrin, but also the disturbance of liver function, and the latter is more important.

In the photosensibilisation, the rays of green and yellow are stronger than the ultraviolet rays.

The fagopyrism is seen most severely in guinea pig but and in rabbit and mouse is not so clear. The so-called atriplicism is not so distinct in animals.

4. Studies of dermatological medicine as fit for the pending emergency status.

Lt. Col. M. Hiraga.

The purpose is to find good substitutes for ointments, zinc oxide and medicaments against scabies and so forth.

Results:

(1) Substitutes for zinc oxide: Silica and Bentnite are useful. In some cases, we see irritability, but generally they are useful.

(2) "Cetanol" ointment: This is made from whale wax and is fit for the basal ointment.

(3) Medicaments against scabies: As the substitute for Mitigal Bayer (Scabol) we used flowers of sulphur, Unohana and Kalium sulphide as ointment, Liniment and solution. These are effective.

(4) Tar-paste: We used the mixture of the tar, which is made from pine-root-oil, and silica or Wilson Paste.

(5) "Chisoko": We used "Shikon" as a substitute for mercurochrome mixed with honey wax and zinc oxide. This is effective on the purulent, crusted and erosive surface.

5. Studies of stones in the urine passage originating from wounds.

Lt. Col. M. Hiraga.

(1) Statistical observation: An account of the sorts of injuries of 114 battle injured patients, who had stones in their urine passage, is as follows:

Injury of spinal cord .....	40.3%
Injury of uric organ .....	23.7%
Fracture of pelvic bone .....	17.5%
Fracture of inferior extremity ...	16.6%

The urinary stone were found among 43.5% of the spinal cord injured patients who lived, and by autopsy 73.1% were found.

Among the 510 patients, who were injured on the upper half of the body, only one patient had a urinary stone.

(2) Cause: The uric dam, disturbance of urination and uric infection are the more important causes of formation of stones that Ca-or vitamin circulation.

(3) Components of stones: By chemical analysis the elements of stones are as follows:



## ENCLOSURE (B), continued

Phosphate .....	46.6%
Carbonate .....	26.6%
Urate .....	6.6%
Oxalate .....	8.9%
Xanthin .....	1.1%

(4) Prophylaxis: To avoid uric dam, disturbance of urination and uric infection, the patients must move their body as early as possible, drink much water and take disinfecting medicaments.

6. Studies of wound in urogenital apparatus.

Lt. Col. M. Hiraga.

(1) Treatment of rupture of the bladder.

Purpose: In animal (dog) experiments, in the cases of intra- and extra-peritoneal bladder injuries, we observed the time which is enough to save by operation, and the cause of death.

Results: The cases of the intraperitoneal rupture of the bladder is to be secured within 12 hours after injury. Some of the intraperitoneal rupture of the bladder died with 20 hours, and we investigate now chemically and bacteriologically the cause of their death.

(2) Plastic operation.

(i) In all the cases of posterior urethra injuries, we use the endless catheter and they are very effective.

(ii) Artificial penis plastic: In 6 patients who lost their penis, we made artificial penis with Bogoras' method.

In the five cases, we used the Pilatow-flap of the abdominal skin, and in one case used the skin of the thigh and sartorius, thereby we used the fascia for urethra, but the latter method is not so good.

(iii) In the injuries of the bladder and urethra, we found that the continued use of the suprapelvic catheter is harmless and effective.

\* \* \* \* \*

Part Eight  
STUDIES IN ORAL SURGERY

1. Studies on the jaw-splint used in the battlefield.

Various kinds of splints for fixation of the fractured mandible have been in the beginning of Manchurian Affair and Sino-Japanese Conflict, but since 1937 we have chiefly used a kind of special hooked splint, the so-called "Jaw-splint used in the battlefield", for this purpose.

Since the splint is made of nickel-chrome alloy, we have been looking for some other metals for the reasons of shortcoming of the material and its character which is easily hardened by cold-working. After various experiments, special alloy was made which chiefly consisted of silver, containing 8% copper and some other elements.

By this newly made alloy, we could almost accomplish our purpose to fix the fractured bone rigidly and the hardness of this metal (Brinell ca. 40) was re-



## ENCLOSURE (B), continued

covered (Brinell 70-80) by heat treatment between 600°-700°C. after bended easily to the form of dental arches.

The study to simplify the production of the splints by way of modifying the form of the splint was forced to discontinue due to the termination of war.

2. Studies on the homoplastic transplantation of bone in mandible.

For the purpose of studying whether the homoplastic transplantation is practically possible or not and whether the periosteum (macroscopically) is indispensable or not for this purpose, experimental operations were carried on in 11 cases with defects on the mandible due to gunshot wound.

There being two cases being operated on at the same time, we divided the bone from the tibia which is to be transplanted into two halves, and one half was transplanted in the same individual and the other half to the other. Of course the transplanted bones were divided into two groups, the one with periosteum, the other without periosteum.

The results are as follows:

	Operations Number	Intention	Resorption	Suppuration
Periosteum With	5	4	1	1
Without	6	6	0	0

Conclusions from these experiments are as follows:

(1) Homoplastic transplatation of bone in mandible is possible, resulting in 10 out of 11 cases perfectly united with bone.

(2) Bone without periosteum also were united with bone perfectly without any disagreeable (Sic).

3. Studies on the transplantation of preserved bone in mandible.

Experiments on the transplantation of preserved bone were carried on in 10 cases with mandibular fracture, the defects measuring from 0.5 to 2.0 cm. The bones used for this purpose were taken from the tibia of different individuals and most of them were preserved in physiological saline solution or in Ringer's solution for a few days. If it is necessary to keep specimens longer than 12 hours, it is recommended to keep them in Ringer's solution at 20°C - 30°C.

The results of this experiment on 10 cases show clinically and roentgenologically quite perfect unity of the transplanted bone with the healthy one, though the observation period differed from 7 months to 12 months.

In order to make more exact observation, a longer period of observation is required, but from these experiments we can positively say that bone preserved for a week is available for the transplantation.

## ENCLOSURE (B), continued

Part Nine  
STUDIES IN THE FIELD OF SURGERY1. Injury on head.

In accordance with the late progress of neurosurgery, the more active, operative treatment is adopted for battle injuries to the head. Pneumoencephalography and arteriography is very highly valued as the method of examination.

(1) Foreign body (mainly bullet and fragment) in the brain (1) (2).

If possible, extraction is tried in all cases, to prevent the development of abscess as well as epilepsy afterwards and to remove the nervous unrest of the patient. The wound in the soft part is to be healed, before extraction is planned. Extraction usually is by means of osteoplastic craniotomy. Not seldom we succeed in fishing the foreign body from the small orifice in the skull (3). No accident during the operation and uneventful aftercourse.

(2) Traumatic epilepsy (4).

With the conception that traumatic epilepsy is caused by traction of the scar upon the brain tissue, we try to resect the damaged, unhealthy part of brain or meningeum as wide and deep as possible, until the brain chamber in few cases. On the defect of meningeum, fascia is transplanted. About half of the operated cases shows improvement or healing.

(3) Brain abscess (5) (6).

In those patients who got injuries on head, the development of brain abscess is frequently fatal, especially when it perforates into the chamber. Various kinds of study are done on the initial symptoms and X-ray pictures of brain abscess, for the purpose of knowing the development and localisation. It is often true that the foreign body in the brain stimulates latent brain abscesses, whose diagnosis is not easy.

2. Injury on chest.(1) Projectile in the lung (7) (8).

About five hundred cases were treated in our clinic. Our principle of operation for the extraction of a projectile is as follows.

- (i) Cases in whose pleura no adhesion exists (including adhesion in little grade).

Preliminary artificial pneumothorax is necessary, two or three times, with the interval of three or four days, and the amount of air is from 800 cc to 1500 cc. The pleural cavity is to open without any arrangement of pressure control usually the lung is collapsed already so well, that the respiration is not disturbed remarkably. As the operator could grasp the lung in the pleural cavity with his own hand, inserted from the incision wound, the extraction of projectile is not so difficult, except in the lung hilus.



*ENCLOSURE (B), continued*

## (11) Cases, in whose pleura marked adhesion exists.

Preliminary artificial pneumothorax is useless. An operation-table with X-ray apparatus is very helpful. After the surface of the lung appears in the operation, we probe the projectile with the needle under the fluoroscopic control. If the needle catches the object, the lung tissue is dissected with the electric knife.

The influence of the operation upon temperature, pulse and respiration disappears within one week and the reduced vital capacity recovers in the course of several weeks.

(2) Empyema after chest injury (9) (10) (11).

<u>Causes</u>	<u>Per cent</u>
Unproper site of drainage	19%
Wrong method of drainage	22%
Bronchial fistual	14%
Foreign body	52%
Mixed infection of tuberculous bacillus	44%

Foreign bodies found are generally: The rubber tube for drainage, a fragment of the projectile, bone, gauze or piece of cloth. These cases, however, take an uneventful course after the extraction of the foreign body. For the diagnosis of mixed infection an examination, clinical as well as bacteriological, is to be carried out.

We must confess that an average of six microscopic examinations was required to find the T.B. bacillus for the first time and the inoculation test was necessary in 65% of all cases. The cavity of T.B. empyema is known to locate posteriorly near the spinal column, reach to the first rib and to contain the bronchial fistual in 40% of the cases. Treatment is not easy but we get good results by extrapleural thoracoplasty.

The operation is divided into two or three stages, according to the physical condition of the patient. Caution must be paid to keep the operating field sterile, protecting it from the discharging wound.

About 50% healing of one hundred operated cases.

3. Injury of blood vessel - aneurysm (12) (13).

The main points of many valuable studies about aneurysm in our clinic will be abridged here.

(1) Method of operation.

As the natural healing of aneurysm is not to be expected, operation is to be recommended. Though the ligation of blood vessel with the complete extirpation of the sac is estimated as a good method, the arteriography after extirpation of the sac, if possible, is concluded by us to be better. Even when we are obliged to leave the sac behind, the inside of the sac is to be opened and obliterated. The ligation of the vessel alone is not proper, causing the reappearance of aneurysm.

(2) X-ray examination.

For diagnosis of aneurysm, the x-ray examination especially arteriography,



*ENCLOSURE (B), continued*

is very important, by means of which the sort, site, size and from of aneurysm, the anatomical relationship between the sac and the blood vessel, the damage of the blood vessel condition inside the sac, and the development of the coagulated mass as well as the collateral vessel are clarified.

(3) Pathologic anatomical finding (14).

All cases were proved to be false aneurysm. On the damaged part of the vessel, the thickening of the vessel wall, most markedly of adventitia, next intima. The wall of the sac consists of the fibrous tissue.

4. Peripheral nerve lesion (15).

About four thousand cases of peripheral nerve lesion have been treated. Lesion of sciatic nerve is most frequent (45%) lesion of the median nerve, ulnar nerves, and combined lesion of the median and ulnar nerves occurred, in this order of frequency. Upon operation we find complete defect of nerve tissue in 25%, partial defect in 15%, formation of scar tissue (neuroma) in 14% and adhesion with adjacent tissue in 46%.

The results of operations follow:

Method of operation	Number of cases	Healing	Improvement	Unchanged
Neurolysis	664	54.8%	29.5%	15.7%
Excision of scar-tissue neurography	277	60.3%	27.1%	12.6%
Nerve graft	152	41.4%	40.8%	17.8%

The shorter the time from injury to operation, the better the result of the operation, --83% healing if operated on within two months as against 44% healing if operated on after six months.

The fat is most suitable for the protection of the lesion part, though we should avoid the use of a foreign body, if possible.

For paralysis of the peripheral nerve many kinds of orthopedic operation as well as the application of prosthesis are done.

5. Injury of extremity (16) (17) (18) (19)

(1) Nonunion and malunion of long bone:

About three hundred cases have been treated. The main causes of these cases are early removal of bone fragments, bad fixation severe infection, imperfect reposition, large defects in soft tissue, etc. For treatment bone grafting is considered to be best. Until the operation three or four months should be waited after the wound begins to heal completely. A bed for the graft bone is built between the upper and lower fragment at first. No sign of infection is permitted for the graft operation.

The one graft is cut out of the croat of tibia and held in place with silver wire, which is to be tried one week later after the preliminary operation. Perfect fixation of the operated on extremity should be continued for three months. Good results in 89.8%.

*ENCLOSURE (B), continued*(2) Deformity after fracture:

About one thousand and three hundred cases have been treated. For treatment, traction with Kirshner's wire is continued after the oblique osteotomy in or off the callus. We succeed in lengthening five or six cm. on the average and in correcting the bending of the bone. In some cases a bone splint from the tibia crest is applied. Caution for the resting infection cannot be paid too much.

✓ 6. Artificial limb and prosthesis.(1) Artificial limb for the upper extremity:

Some modification is added to Brandenburgs' prosthesis as the working arm. An elbow joint is used which is a universal spherical joint which can be locked at any direction. The weight is 1710-1730 gr. for the upper arm amputated and 920-1250 gr. for the forearm amputated. At the ending, various kinds of appliances for the artificial hand are connected, of which a "C"-hook, four cm. in diameter with an opening of three cm. arc-length, is most useful. The ornamental cover is usually furnished.

Sauerbruch's hand and Kruchenberg's operation is out of usage.

(2) Artificial limb for the lower extremity:

Every amputatee practises the training to walk with the provisional prosthesis for three months before he uses the permanent prosthesis. The permanent prosthesis has a butterfly joint and patella as a substitute for knee joint, but lacks the ankle joint. It looks just like the healthy leg and can be flexed as much as 90 degrees in the sitting position, but cannot help tottering during walking. The socket is made of aluminium. Only the artificial limb of standard type is delivered to the amputated in the army, while many kinds of prosthesis are manufactured in accordance with his profession by the welfare ministry.

(3) Prosthesis:

In paralysis of peripheral nerve s.p. fibular nerve and radial nerve suitable prosthesis is applied to hold the dorsiflexion of the wrist and right angle position of the ankle. For the shortened leg a prosthesis like Grossmith's is used, to compensate for the lost length.

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Part Ten  
STUDIES IN THE FIELD OF PSYCHIATRY

Summaries of Psychoneurological Treatises  
Konodai Army Hospital

1. Manifestation and Development of Aspect of War Neurosis.
2. Psychiatric Observations on War Neurosis.
3. On Psychiatric Judgment of Punished Soldiers.
4. On Psychiatric Judgment of Criminal Soldiers, Especially Viewed from Medical Standpoint for Prevention of Crime.
5. Investigation on Soldiers of Psychiatrically Low Disposition.
6. Therapy of Schizophrenia.

Manifestations and Development of Aspects of War  
Neurosis (J.A.M.C. Special number 2-3)

Lieut. Akira Kasamatsu

War neurosis cannot, when regarded as a psychogenetic reaction, be treated with a conception that it forms a unit of diseases in medical science, as is the case with many other functional diseases. It should be diagnosed from all the aspects it shows, which are separated from each other by analyzing the composition formed by them. The author had made investigations on this subject from the following two viewpoints.

The first is the question of what change may be brought forth on the aspect of disease by change of environment, such as front line and rear zone, or entry to hospital-army hospital abroad-returning voyage-army hospital at home-departure from hospital. In the light of this viewpoint, there are more symptoms chiefly of psychiatric nature, such as the reaction of fright, in forward zones, and more hysterized physical symptoms in the rear.

War neurosis exhibits an uninterrupted transition of aspects of the disease. For example, the nearer to the front, the more obvious the reflex self-defensive instinct, and the nearer to the rear, the greater the so-called tendency of wish.



*ENCLOSURE (B), continued*

The second is the question of how the elements, war and race, are pathoplastically shown on the aspects of disease.

- (1) Contrary to expectation, there are not many cases in wartime where neurosis is diagnosed as neurasthenia, in comparison with peace.
- (2) Few patients show reactions akin to that of fright. Many cases exhibit reactions of inner conflict.
- (3) There are many cases showing more or less disturbance of consciousness at first.
- (4) Even those symptoms to be regarded as Ganser's dazed condition are more of a stimulating, agonizing and depressive nature than comic and jesting.
- (5) The symptoms display the following mode of development: Feeling of responsibility - Depression - Disturbance of consciousness - wish of death. It presumably denotes the racial characteristics that there are many cases where tendency of wish as the basis for the development is not recognized.
- (6) Such physical symptoms as paralysis of power of locomotion and tremor, etc., coming promptly after being frightened, are few.
- (7) Hysteric symptoms are much affected by the special circumstance of being transported over the sea by hospital ship. After all, war offers opportunities to examine the strong and weak points of races.

Psychiatric Observations on War Neurosis.  
(J.A.M.C. No. 243 - 245, 249 - 251)

Lieut. Tsunao Sakurai

The so-called war neurosis first named and described at the time of World War I involves too many aspects to come under the same category with what the author has had as the object. The author has tried to make sharp the focus of the problem with particular emphasis laid on the fact that war neurosis is a type of psychogenetic reaction.

War neurosis is characteristic in the fact that besides obviously neurotic patients there is a group of many patients who have a latent tendency toward neurosis. It is pointed out that here lies the complication and the vastness of this problem.

This disease is brought forth chiefly by the interaction of the patient's bad disposition due to his character and circumstantial and external factors. It was clarified that the three important factors, preparedness, impulse and special self-experience, take part in provocation of the disease, which is secondarily aggravated by appearance of a utilitarian sense.

The author assumed a stratified composition of character to locate the group of the ideas forming causes of diseases in these character strata. He has tried to explain clarity of consciousness and purposefulness in symptoms with the foregoing assumption, and to find a law on the aspects covering from pure neurosis to simulation and transition into each other of these symptoms.

In conformity with this idea, the author classified war neurosis into five forms, hypochondric form, paranoid form, utilitarian form, bright form and escape form. He believes that this classification is not only scientifically interesting, but practically useful for deciding treatment and anticipating prognosis of each symptom.

## ENCLOSURE (B), continued

The secret of this therapy is first, to detect psychical causes and to remove them. Second, in case these causes cannot be removed, to smash feelings of wishes or expectations accompanying them and rectify patient's psychical attitude. To realize this, such measures as persuasion, suggestion and compulsion should be taken as demanded by each case. However, the author has applied the newly established convulsive treatment of electrification to neurosis with distinguished result and has recommended widespread use of it in the description of its application and mechanism of effectuality. It has been generally believed that Naegeli's so-called "Kapitalabfindung" (Capital paying off) method is the only therapy for traumatic neurosis, but it was impossible to introduce it into army therapeutical system without changing its form due to various circumstances. A substitute method had been badly needed, until the author and his co-workers took up a new method based on this convulsive treatment of electrification, breaking down to the field of therapy of neurosis.

On Psychiatric Judgment of Punished Soldiers  
(Accompanied by Psychiatric Investigation of  
Soldiers under Surveillance)

Lieut. Tadashi Tanaka  
and his two co-workers

According to the authors investigation made on 11 regiments belonging to the Eastern Army (Soldiers investigated totaled 11,656), 83 punished soldiers were found, amounting to a percentage rate of 0.71%. From them, those who were supposed to be psychiatrically normal, having been punished on account of their subordinates' misconducts or automobile accidents, totaling 20, are excluded. The remaining 63 comprise 42 normal soldiers and 21 abnormal, the latter being one third of all the punished. The 21 abnormal comprise the following cases:

Weakness of intellect	{ Imbecility	5
	{ Debility	3
Anomaly of character		9
Otherwise		4

On inspection of 31 soldiers, unpunished but under constant surveillance, there were only two normal soldiers and the remaining 29 abnormal comprised:

Weakness of intellect	{ Imbecility	15
	{ Debility	3
Anomaly of character		2
Schizophrenia		5
Maniac-depressive psychosis		2
Epilepsy		1
Postmeningitic state		1

From both investigations it is summarised that at least 50 psychiatrically abnormal soldiers served in the 11 regiments of the Eastern army, and they were apt to commit crimes and constitute a great hindrance to education and training.

The author advocates that the first importance should be given to examining soldiers' mental health to ensure early discovery of abnormalities and the tak-



## ENCLOSURE (B), continued

ing of measures to cope with them in order to prevent crimes and maintain discipline.

On Psychiatric Judgment of Criminal Soldiers, Especially Viewed from Medical Standpoint for Prevention of Crime. Lieut. Tadashi Tanaka

The following results and suggestions were obtained from an investigation from various points of view of forty criminals who had been put to psychiatric judgment at Konodai Army Hospital.

- (1) The crimes cover nearly all categories of crimes, of which desertion from barracks is most remarkable in number. Most of the deserters are second privates.
- (2) Of the 40 cases, 38 (95%) were mentally abnormal. This shows that crime and misconduct are in close connection with mental abnormality. Hence extremely speaking, it is desirable that all criminals should undergo psychiatric judgment.
- (3) Two soldiers of the normal group are new recruits who had not been loved in their own homes. This should be kept in mind by those who occupy leading positions.
- (4) The 38 mental abnormalities are classified, according to kind of disease, as follows:
 

Schizophrenia	14 (36.9%)
Psychopathia	8 (21.1%)
Hysteria	6 (15.8%)
Weakness of intellect	5 (13.2%)
Paranoia	1 ( 2.6%)
Progressive paralysis	1 ( 2.6%)
Malaria	1 ( 2.6%)
Psychiatric disturbance	1 ( 2.6%)
Pathological drunkenness	1 ( 2.6%)
Depressive reaction	1 ( 2.6%)

(5) In the classification according to rank and kind of disease, anticipated results were obtained in general, except one officer was hysteric and all cases of non-commissioned officers, four in all, were psychopathic.

(6) According to the classification from the viewpoint of kind of crime and kind of disease, profound crimes, such as lese majesty, disobedience killing or wounding a superior and murder; were committed exclusively by psychosis in a narrow sense, comprising for the most part schizophrenic crimes of weakness of intellect and hysteria. While crimes of psychopathia include considerably malignant ones, such as intimidating a superior, arson, etc.

(7) The psychiatric symptoms which constituted the direct causes for commitment of crimes are divided into the following:

Clouding of consciousness	9 cases
Delusion	9 cases
Weakness of intellect and dementia	10 cases
Depressive feeling	1 case
Self-indulgence, indignation	6 cases
diseased desire etc.	
Fitful impulse	3 cases



*ENCLOSURE (B), continued*

All the crimes committed by the above-mentioned psychoses were brought about by various delusions.

(8) The period from the begining of the disease to commitment is, apart from 13 cases of weakness of intellect and psychopathia, over several months in 14 cases of other kinds of mental disorder, numbering 25. During this period most of the criminals were suspected of their abnormality by the people surrounding them, who, notwithstanding, did nothing with them, because of their poor knowledge of psychiatry.

(9) Of the 38 cases, 14 cases are ex-convicts. Even the sinless group involves over seven cases of misconduct of such kinds as getaway or the breaking of furniture. From this, also, it is obvious that the psychiatrically abnormal tend much to frequent offence.

(10) Except one each case of malaria, psychiatric disturbance and depressive reaction, all cases were so aggravated that exemption from military service was necessary.

(11) Psychiatric judgment would be almost of no value, if it is used only for reference in deciding whether Article 39 of the Criminal Law should be applied. It is obvious as afore-mentioned that criminals of psychiatric disturbance would most probably take to further offence, no matter whether they be punished or not, if they are freed into the world at large. Accordingly, psychiatric judgment would be practical, if it is used in this way. First, if it tells exactly what the disease is and points the way to the future of the disease. Then, medical treatment should be given to those needing it. Isolation from the world should be forced upon those who ought to receive it and maintained until there is no fear of offence (even life time isolation for those whose offence is probable all their lives!). If necessary, vocations appropriate to each case should be taught to patients who are to be at large, lest they live in idleness.

Only 40 cases of psychiatric judgment are referred to here, and presumably there are many mental abnormalities with crimes not undergoing psychiatric judgment as yet. Measures to cope with this should never be neglected.

Investigation on Soldiers of Psychiatric Low Disposition    Konodai Army Hospital

As the war dragged on and expanded with the upward trend of mobilization rate, soldiers of psychiatric low disposition increased in number, as physically weak soldiers did, constituting grave causes of crimes and misconducts and lowering the efficiency of education.

In accordance with this situation, we have made several investigations of men of psychiatric low disposition in the army to offer help in the prevention of crime and misconduct and in the promotion of the efficiency of education.

The results of the investigations are summarized in the annexed lists No. 1 (Distribution of Men of Psychiatric Low Disposition) and No. 2 (Distribution of Men of Low Intellect). As shown in them, of those found to be psychiatrically low disposed, the worst cases were sent to the hospital and advice on education and training for slight cases was given to those in charge of them.

## ENCLOSURE (B), continued

Distribution of Men of Low Disposition  
(Result of Individual Inspection)

Category of troop	Year	Total of the inspected	Individual inspection		Result of individual inspection					Treatment	
			Personnel inspected	Method of selection	Weakness of intellect	Psychopathic	Other Psycho-neurosis	No remarkable findings	Hospital	Protection	
Artillery	1941	1,067	25	Mental health test	13	4	8		7	18	
	1943	676	52	Mental test	45			7	6	39	
	total	1,703	77 (4.5%)		58 (3.40%)	4	8	7	13 (0.74%)	57 (3.34%)	
Army Hospital	1941	96	10	Mental test	8	1	1		4	6	
	1942	360	24	and Mental health test	20	1		3	3	18	
	1943	156	14		14					14	
	1944	875	87		84	1	2			78	
	total	1,487	135 (9.07%)		126 (8.47%)	3	3	3	7 (1.08%)	116 (7.80%)	
Air Defense Corps		29,16	281 (0.96%)	Mental health test	215 (0.93%)	7	55	4	(0.62%)	96 (0.33%)	
Technical Corps (tank, engineer, artillery, communication etc.)	1944	1,697	100	Mental test and Mental health test	75	2	1	22	13	65	
Medical Privates' training Corps	1944	323	17		15		1	1	2	14	
	total	2,020	117 (5.80%)		90 (4.50%)	2	2	23	15 (0.75%)	273 (3.83%)	
Infantry, artillery Cavalry, artillery Engineer (Reservist Militia)	1944	7,089	419 (5.91%)	Mental test and Mental health test	217 (3.82%)	17	17	114	32 (0.45%)	273 (3.85%)	
2 troops in a certain divisional district	1945	12,691	190 (1.49%)	Mental health test	141	22	23	4	79 (0.62%)	107	
Total		54,157	1,219		901	55	108	155	336 (0.24%)	728	

## ENCLOSURE (B), continued

## Distribution of Men of Low Intellect

Category of Personnel				Investigator	Investigated personnel	Inebriety (%)	Debility (%)	Total of the weakly Intellectuated (%)	Method of Mental Test
1	Medical Privates (supplementary reservists)	Konodai Army Hospital	1939	Konodai Army Hospital	139	3.57	5.01	8.58	Nopen's Method (80 top score)
2	Infantry (active)	Imperial Guard	1941	Medical Section A.H. Imperial Guard	777	0.5	4.6	5.1	Nopen's Method (80 top score)
3	Infantry (active)	East 62	1941	Hygienic Faculty A.M.S.	431	1.4	10.6	12.0	Nopen's Method (80 top score)
4	Air Defense Corps	East 1900	1942	A.D.C. (Maj. YANAGISAWA)	879			7.7	Nopen's Method (80 top score)
5	Medical Privates (supplementary reservists)	Konodai Army Hospital	1943	Konodai Army Hospital	156	0.6	8.4	9.0	Standard Mental Test (100 top score)
6	Medical Privates (active)	East M.P.T.C.	1943	Konodai Army Hospital	357	1.3	8.0	9.3	Knowledge Test Below 5 points Debility Below 2 points Inebriety
7	Artillery	East 74	1943	East 74 (D. KAMBE) Konodai Army Hospital	636	0.94	7.23	8.17	Nopen's Method (80 top score)
8	Air Defense Corps	East 1900	1943	A.D.C. Konodai Army Hospital	5210	3.4	15.4	18.8	Nopen's Method (80 top score)
9	Boy Tanker		1943	Hygienic F. A.M.S. (Maj. IGARASHI)	586		0.2	0.2	Standard Mental Test (100 top score)
10	Medical Cadets' Corps		1943	Hygienic F. A.M.S. (Maj. IGARASHI)	110				Standard Mental Test (100 top score)

Note: Original table had blank column labelled "dementia".

Abbreviations indicate: A.M.S. - Army Medical School  
East 62 - East 62 unit

A.D.C. - Air Defense Corps  
A.H. - Army Hospital

East M.P.T.C. - East Medical  
Privates' Training Corps.

## Therapy of schizophrenia

## Konodai Army Hospital

Convulsive treatments with insulin or cardiazol had been in use up to 1940. From about 1940 on we took to convulsive treatment by electrification to curb the consumption of drugs and in view of the better results of therapy.

The results of therapy are summarized in the attached lists.

The results of treatment for Schizophrenia (for Jan. 1938 - June 1940)  
The Konodai Military Hospital

Form	Hebephrenia		Catatonia		Paranoid Form		Mixed Forms							
							Heb. & Cat. form		Cat. & Para. form		Heb. & Para. form		Total	
Result	Num.	%	Num.	%	Num.	%	Num.	%	Num.	%	Num.	%	Num.	%
Recovered Completely	8	7.8	33	27.3	8	12.5	9	13.2	3	17.7			57	16.3
Recovered Socially	48	46.6	36	29.7	14	43.8	33	48.5	8	47.0	3	37.5	142	40.7
Improved	24	23.3	12	10.0	8	25.0	11	16.2	2	11.7	1	12.5	58	16.6
Unimproved	21	20.4	32	26.4	5	15.6	11	16.2	3	17.7	3	37.5	75	21.5
Died	2	1.9	8	6.6	1	3.1	8	5.9	1	5.9	1	12.5	17	4.9
Total	103		121		32		68		17		8		349	



## ENCLOSURE (B), continued

Part Eleven  
OTHER STUDIESPROPHYLAXIS AND TREATMENT OF MALARIA  
by T. Taniguchi and othersA. Studies on exoerythrocytic form (E.E.F.).I. The occurrence of E.E.F.

## 1. Avian malaria (Pl. gallinacoum, pl. cathemerium, pl. praecox)

(1) The occurrence of E.E.F. confirmed (Taniguchi, Okura, Oshima).

(2) The Schizo-gonig of E.E.F. especially in R.E.S. (the loco of inoculation, brain, bone-marrow, spleen, lung, liver, kidney, suprarenalbody, heart, testis etc. proved.

(3) It appears more frequently in the case of sporozoit inoculation than blood inoculation.

## 2. Ape malaria (pl. innivarcyclopis).

The occurrence of E.E.F. is not so clearly confirmed as in the case of avian malaria, but it is believed that E.E.F. may appear in the R.E.S. of Spleen. (Reticulo-endthelial System)

## 3. Human malaria.

(1) The occurrence of achromatic parasites was not confirmed according to Oshima's report.

(2) Prof. Africa's report (1943) concerning the E.E.F. of tropical malaria found in the brain and other internal organs seems to be decided. Conclusion; The new-found cycle of development seems universal in all sorts of malaria.

II. On the mode of infection.

In the case of sporozoit inoculation of avian malaria (pl. gallinacoum) Taniguchi found microscopically the achromatic parasite at the loco of inoculation and in other organs, especially in the spleen, even in the blood negative phase; moreover the infection test was positive, so he concluded that E.E.F. antecedes the erythrocytar from, but Okura, who experimented with pl. praecox, disagreed with him. Taniguchi has now no confidence, sporozoit directly invade in R.E.S. or as Missivolisopinian in the first step develops in the lymph system and thereafter invades there.

III. E.E.F. and recidives.

The E.E.F., which remains in the hostile resistant to the action of known antimalarian drugs, would cause recidives. The details are now under investigation.

IV. E.E.F. and antimalarian drugs.

Already known antimalarian drugs, quinine, atebrine, plasmochine etc, are proved effective against the erythrocytar form and their therapeutical effect is remarkable, but their prophylactic effect is not so evident. Ex-

*ENCLOSURE (B), continued*

perimentally these drugs are effective in the case of blood inoculation but not of sporozoit inoculation by mosquitoes.

V. E.E.F. and malarian acute death.

One of the causes of acute death from tropical fever has been proved to be thrombosis of heart capillary which is caused by the parasites of E.E.F. (Africa); and it has been confirmed experimentally by Taniguchi also. On the other hand Oshima attached more sufficient importance to the disorder of parenchymal organs such as the heart, liver etc. in the case of malarian death. Taniguchi asserts that the difficulty to find E.E.F. in the section praeparateds is responsible for Oshima's opinion.

B. The mechanism of antimalarian drugs and investigations of new ones.

I. On the biological tests of antimalarian drugs.

Each drug was tested against sporozoit, gamete and shizont. First of all the committee inquired into the testing methods, because known antimalarian drugs are too feeble in their prophylactic power notwithstanding their great therapeutic power.

1. Chemotherapy against pyrexial form:

Roohl's method with canarian malaria as well as fowl malaria and the chemotherapeutic test with ape malaria are taken and it is proved that they coincide with each other with some exceptions.

2. Chemoprophylaxy against sporozoit:

Taniguchi Ishii, Akiba, Terasaka and others investigated many anti-malarian drugs by means of Roohl's method with blood as well as sporozoit inoculation in the case of canorian Malaria.

Conclusion; the committee found some more effective chemotherapeutic agents than quinine, atebrine and plasmochine, namely 6-amino-dehydro-chinchonno, 5-amino-dehydro chinine, and as a chemoprophylactic agent, prosoptasine was proved the best.

3. Provocation test:

Provocation tests were held without decided conclusions.

II. On the mechanism of antimalarian drugs.

According to Kato's report the effect of the drugs goes parallel with the maintenance-duration in the body. Suda studied the respiration of the parasite with Warburgs manometer and found that the parasites take glucose and triose as their energy source and that their respiration ferments are the same as high-class tissue respiration ferments. Striking is the fact that the blood sugar increases according to the augmentation of parasites and hyper glycaemia and a remarkable decrease of liver glycogen is caused.

C. Immunity of malaria; diagnosis and treatment as its application.

I. Avian malaria.

Okura reported that the protection of avian malaria, which is supposed proportional to the degree of infection, is acquired longer in its duration and stronger in its effect than the human malaria.



*ENCLOSURE (B), continued*II. Human malaria.

Heteroimmunity is acquired more protracted than the homoimmunity, and in the latter case immunity caused by the more toxic strain is acquired more quickly.

III. Applications.

Now without success.

Anti-malarial ChemicalsName of the  
Research InstituteName of the  
Investigator

The Imperial Academy (the members of --)

Heisaburo Kondo  
Yasuhiko Asahina

The Faculty of Medicine of the Tokyo Imperial  
University

Morizo Ishidato

The Faculty of Medicine of the Tokyo Imperial  
University

Eiji Ochiai

Headquarters of the Army Medical Stores

Tanezo Taguchi

The Institute of Takeda and Co. Ltd. Chem. Works

Sueo Tateoka

The Institute of Shionogi Seiyaku Co. Ltd.

Chiaki Tani

The Osaka Imperial University Hospital (the chief  
of the dispensary)

Toshi Nogami

The Government Institute of Infectious Diseases

Tsukinaka Yamana

The Faculty of Medicine of the Tokyo Imperial  
University (a member of the Government  
Institute of Infectious Diseases)

Michizo Asano

The Faculty of Medicine of the Tokyo Imperial  
University

Shoji Shibata

The Faculty of Medicine of the Tokyo Imperial  
University

Shigehiko Sugazawa

TuberculosisName of the  
Research InstituteName of the  
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Taizo Kumagaya

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Eiji Arima

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Kojo Sakaguchi

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Masao Tsutsuki



## ENCLOSURE (B), continued

The Faculty of Medicine of the Osaka Imperial University	Arao Imamura
The Institute of Public Health of Ministry of Health and Social Affairs	Keiso Nobeji
The Faculty of Medicine of the Fukuoka Imperial University	Tadao Toda
The Faculty of Medicine of the Sendai Imperial University	Toshiaki Ebina
The Faculty of Medicine of the Keio University	Kentaro Omori
The Faculty of Medicine of the Keio University	Tadajiro Nishino
The Japan Medical Society	Shigekiyo Endo
The Association for Prevention of Tuberculosis	Harumichi Oka Ken Yanagisawa

MalariaName of the  
Research InstituteName of the  
Investigator

The Faculty of Medicine of the Osaka Imperial University and the Institute of Microbiological Diseases.	Tenji Taniguchi Masayuki Okagawa Ryojun Kinoshita
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The Nagasaki Medical College	Minatoo Terasaka
The Nagasaki Medical College	Genichi Okura
The Tokyo Imperial University	Asaichiro Akiba
The Sendia Imperial University	Masahiko Kuroya

TUBERCULOSIS: A WAR-TIME RESEARCH  
(Prevention and Treatment)Disposition:

Though it has been thought by many workers that it is possible to prevent confinement in bed due to tuberculosis simply by training the body, this is a false standpoint, that puts stress on the outer aspects such as the constitution, the power of muscles etc. when the prevention of tuberculosis and the elimination of the need for confinement in bed are practically brought about in thought. The investigation of the relationship between the body-constitu-

*ENCLOSURE (B), continued*

tion or strength and the contraction from tuberculosis in the case several thousand persons, has now made it clear that there is hardly any appreciable relation between them.

In surveying tuberculosis, no physical examination with either a tuberculin-test or an X-ray examination will ever be successful. (Okaka) It is within one year after the tuberculin-test reacts that the development of clinical manifestations (as revealed by X-ray examination) is decided (Nobeji) and at this time hardly any positive reactors characterized by the development of only an area of erythema acquire the disease, but the cases will be found among those whose reactions are marked with double erythema, induration, swelling etc. (Nobeji)

Dietary Cure:

It has been long supposed to be of some use to prescribe a fatty diet, and now this is made more concrete and distinct, that is to say, the most successful results were obtained when the staple food of the ordinary diet (rice or wheat) is reduced by half and 60 gr. of fat (butter or liver oil) is added. In this case the weight of the body becomes greater most rapidly, but hemoptysis occurs less frequently and mortality falls. The fatty quantity of 30 gr. per day results in no remarkable effects in 2 or 3 months, but, when it is increased to 60 gr. per day, a noticeable result could be obtained. (Kumagaya, Ebina, Omori and Arima)

B.C.G.:

The vaccination with the B.C.G. strain has a very striking effect in preventing the disease from developing clinical manifestations if it is performed whenever the bimonthly tuberculin-test of the uninfected subjects is examined and is found to be effected with a erythemotous reaction under 10 mm. in diameter, and with results of constant reaction of erythema over 10 mm. in diameter. (Oka)

The axillary injecting method has been studied systematically, anticipating other countries. The percentage of positive reaction by this method is as much as that in the case of positive intradermal injection, and the effects of positive reaction (the strength of tuberculin-allergy) is similar in these two Methods. Tuberculin-allergy makes itself clear earlier than in the case of intradermal-injection, while it disappears also. No harmful secondary reaction will be found all over the body, and it could be regarded that there are scarcely any local reactions such as the outbreak of abscess if the injection is performed by ordinary technicians. However some abscess occurs, but this seems to be due to the injection of some unsuitable loco. It is more successful and there is secondary reaction when the axilla of the right arm is used than when the opposite side is employed. (Sakaguchi, Imamura, Ebina, Toda, Yanagisawa and the naval workers)

The velocity of absorption in the case of injection of santoninacid soda is more quick when the injection is done axillarily than when it is carried out intradermally. (Sakaguchi)

When the vaccination of the B.C.G. strain is performed on those who react negatively to the tuberculin-test, no particular secondary reaction could be seen, while in a few cases some bodily reactions could be found, such as fevering, headache, weariness etc. Sometimes as an occurrence of Koch's phenomenon it reacts with an abscess. No lesional reaction could be seen in the remaining lesions. It has been discovered that no harmful reaction can be brought



*ENCLOSURE (B), continued*

about in the vaccination of B.C.G. is carried to those whose reaction to the tuberculin-test is not yet determined because of the short time it has been in use. (Sakaguchi, Ebina, Imamura)

Production of the vaccine an apparatus of ultra-tonal wave is not always necessary. By the shaking-method the vaccine can be produced on a large scale when this method is performed with 500 crystal-balls of 7 mm. in diameter (the quantity of bacteria is 500 mg.). When it is made by the lyophile process, the freezing temperature must be -10 degrees, and when the temperature is -40 or -70 degrees most of the bacteria will die out. Saccharose, especially lactose, is a most beneficent component of the cultivating-medium for this bacteria (3-5% is best). However there remain many points to be improved, for the positive reaction is obtained less frequently in the case of normal vaccine. (Yanagisawa, Ebina)

Chemotherapy:

As there are many therapeutic chemicals for tuberculosis and one could not select them with success, scientific investigation of this problem is very necessary. Thus Cepharantin has been brought to the front field of examination. And the results obtained clinically reveal that these chemicals are not always effective whenever and wherever they are used. (Kumagaya, Imamura, Oka, Sakaguchi, Ebina, Arima) Not infrequently hemoptysis and other secondary reactions are found. (Ebina, Sakaguchi). The results of research with animal tuberculosis are not always similar to the data recorded by Prof. Hasegawa. (Yanagisawa, Toda). And it has been made clear that the number of tubercles is not always reliable as a basis for judging the data. Therefore now it is very necessary to consider the particular conditions of the tubercle such as the microscopical characters, the results of cultivation etc. (Yanagisawa, Oka). It is sorry to say that any good chemicals have not been produced, but the time of investigation was very short this time.

Anti-body-like Substances:

Many workers desire to find such a useful anti-body-like substance against tuberculous bacteria as penicillin. And it has been discovered that the development of tuberculous bacteria can be interrupted by using a sort of micro-organism belonging to the class of *Aspergillus*. This problem is now being further investigated. (Kumagaya, Ebina)

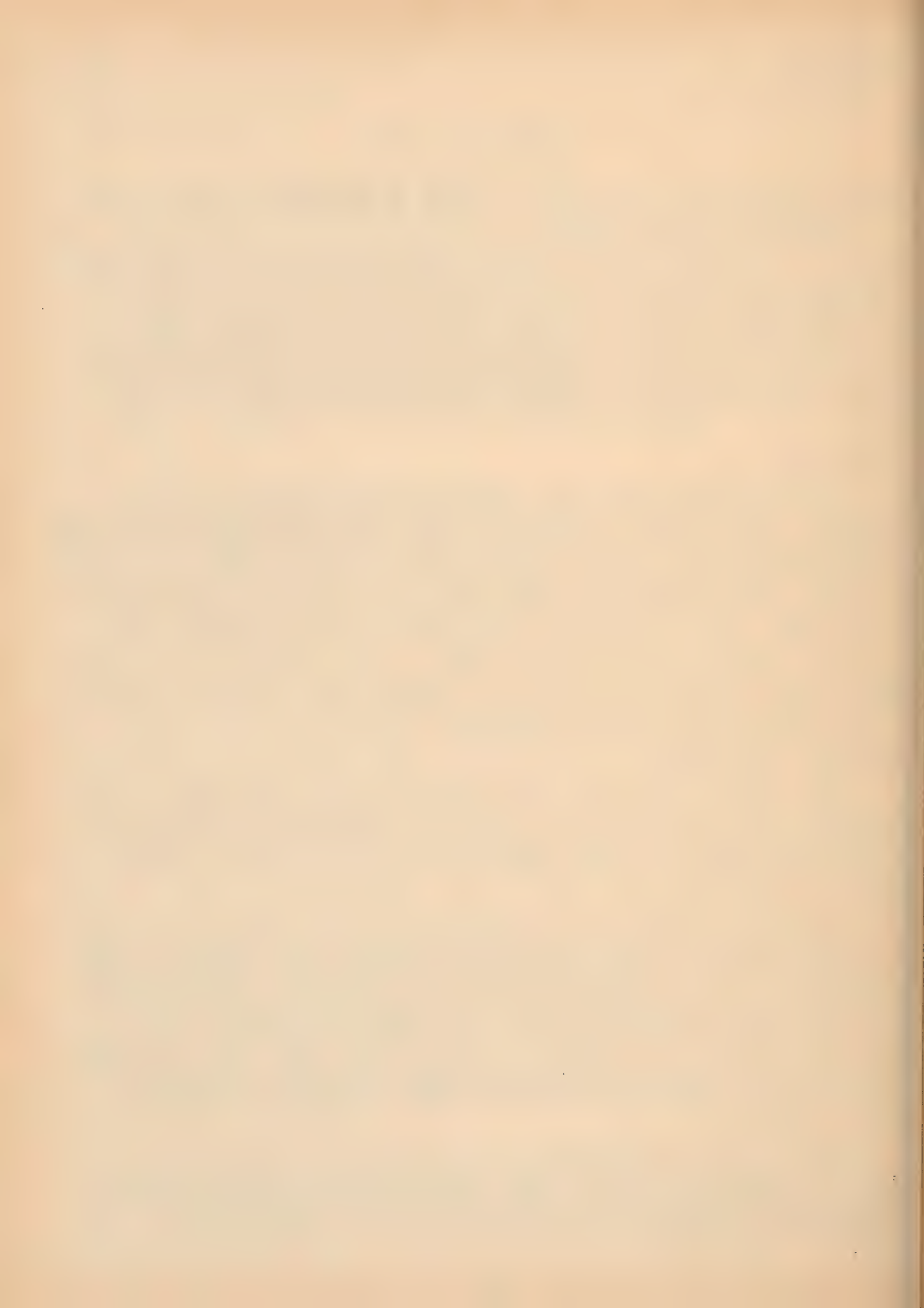
Artificial pneumothorax:

It is better in practice to adopt the method in which the patient is made a so-called working carrier of pneumothorax, who can spend a normal life without any risk of falling into some severe sickness and with a continual state of pneumothorax. Such a patient is selected from among those reacting negatively to the test of bacteria in the open state. It is hoped to improve the condition in which the working carrier of pneumothorax is brought into the status of a non-carrier because of the lack of technicians. There are few who are apt to fall into worse condition by work and they could be protected from this danger if the distance of walking to attend their office is shortened and the interval of supply of chest-air is decreased in length. (Sakaguchi)

Surgical Therapy:

Thoracoplasty is of use, and is to be popularized. Some new simple method of anaesthetisation of the diaphragmatic nerve is hoped to be discovered and popularized. The ointment of caprin-acid or its cream (having 5% caprin-acid) is useful against the tuberculous abscess and hemorrhoid. (Tsutsuki)





ENCLOSURE (C)





## ENCLOSURE (C)

## ORGANIZATION OF THE JAPANESE ARMY MEDICAL DEPARTMENT

\* \* \* \* \*

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## ENCLOSURE (C)

## ORGANIZATION OF THE JAPANESE ARMY MEDICAL DEPARTMENT

\* \* \* \* \*

Answers to the requests regarding the following data:

1. Detailed outline of organization of Japanese Army Medical Department including:
  - a. Total numbers doctors, dentists, nurses and other officers and enlisted personnel.
  - b. Total numbers of hospitals, laboratories and other fixed and mobile units.
  - c. Distribution of medical personnel and units in Japan and in occupied areas.
  - d. Medical education before and during war in the Army.
  - e. Tables of organization and equipments of medical units.
  - f. Lists of casualties during the war with breakdown as to cause and effect.
2. Copy of Who's Who in Japan.
3. List of pathologists in Japan.
4. List of other laboratory workers in Japan.
5. Curriculum of civilian medical schools before and during the war for doctors, dentists and nurses.

(refer to the monograph)

\* \* \* \* \*

- A, Total numbers of doctors, dentists, nurses and other officers and enlisted personnel.

	on the active list	enlisted	total
doctors	5,700	10,000	15,700
dentists	29	800	829
medical officers (not specialists)	209	1,400	1,609
pharmacists	500	1,000	1,500
nurses	7,000 (belonging to the Army)	10,916 (belonging to the Red Cross Society)	17,916

## ENCLOSURE (C), continued

## Remarks:

1. 7,000 nurses belonging to the Army involve those under education at present.
2. Many dentists were called out as ordinary soldiers.
3. In the column of enlisted dentists are included many not on the regular staff.

\* \* \*

## B. Total numbers of hospitals, laboratories and other fixed and mobile units.

Army hospitals	228
Ambulance corps	90
Field hospitals	291
L.C. hospitals	109
Headquarters of L.C. hospitals	24
Headquarters of ambulance sections	4
Ambulance sections	53
Army Water-supplying Corps	24
Ambulance Corps on hospital ships	20
Divisional Water-supplying Corps	56

## Laboratorium

1. Independent.  
(the 8th Institute of Air-forces)
2. Dependent.  
(Institute of the Army Medical School and  
the 7th Army Technical Institute)

\* \* \*



## ENCLOSURE (C), continued

## C. Distribution of medical personnel and units in Japan and in occupied areas

		In Japan	In occupied areas						
			Korea	Manchuria	China	Southern territories	Pacific area	Sakhalin and Chishima	Formosa and Okinawa
Medical personnel	doctors	4,500	550	1,240	4,000	3,500	590	500	840
	dentists	220	42	144	178	185	8	10	42
	pharmacists	350	40	180	410	350	50	40	80
	officers (not specialists)	334	69	314	320	460	21	20	71
	nurses	7,930	132	1,300	2,649	1,440	0	0	447
Medical Units	Army hospital	112	15	69	0	17	1	4	10
	Ambulance Corps	23	5	18	5	28	2	4	5
	Field hospitals	89	13	37	42	87	7	0	16
	L. C. hospitals	3	2	3	64	34	1	0	2
	H. Q. of L. C. hospitals	0	0	2	0	0	0	0	0
	H. Q. of Ambulance sections	0	0	2	2	0	0	0	0
	Ambulance sections	0	0	3	18	32	0	0	0
	Divisional Water-supplying Corps	5	3	17	4	22	0	0	0
	Army Water-supplying Corps	7	0	11	3	13	0	0	0
	Ambulance corps on hospital ships	20	0	0	0	0	0	0	0

## Remarks:

In A, B and C Tables the data investigated is partially estimated.

\* \* \*

## D. Medical Education before and during the War in the Army.

1. Education for Medical Officers.

Those who had been selected and commissioned from among the volunteers of all medical colleges (including the medical sections of universities and academy students) were appointed as medical officers when they were graduated at their school. They entered the Army Medical School, learning some of the Army medical sciences and techniques necessary for a medical officer for a period of one year before the war, or 8-10 months during the war.

The graduate officers were allowed to enter the Army Medical School again or some other university to take special work for one or two years before the war, but this system was abolished during the war.

The enlisted officers were assembled and taught some necessary lessons for 3 months at army hospitals in the first stages of the war, and afterwards at the Army Medical School.

The courses of study mainly taught at the Army Medical School were military hygiene and military preventive medicine.

Supplemental education was given in some courses considered to be unsatisfactory for the needs of the medical officers who gathered at the Army Medical School from various places before and during the war. They in turn spread this education at their own garrison places.

*ENCLOSURE (C), continued*

The education of dental officers was begun in 1941. The courses and terms were similar to those for medical officers.

The main point in education was to improve the dental technique of the students. But dental students were also given some knowledge of military medicine.

2. Education of Non-commissioned Medical Officers.

Volunteers were selected from among the orderlies and appointed as non-commissioned officers after they passed some courses of study in primary medical science and medical business.

The term of education was one year before the war and eight months during the war.

3. Education for Medical Orderlies.

Before the war medical orderlies were given a military education for two months in their own corps. Afterwards they were instructed in sicknursing for five months at a military hospital.

The term of education was reduced by half during the war.

4. Education for Nurses.

No nurses were trained in the army before the war. In the later stage of the war they were given a course of about one year at a military hospital.

Most of the nurses employed were those educated for three years at the Japan Red Cross Society.

\* \* \*

ENCLOSURE (C), continued

E. Tables of organization and equipment of medical units.

Table of Organization of the Army Medical Department-Office

	Office of the Army-Corps	Office of the Army	Office of the Division	Office of the Inland Division
Lieut. General				
Maj. General	1	1		
Colonel				
Lieut. Colonel	1	2	2	1
Major				
Captain	1 (phar- macist)	2 (phar- macists)	1	1 (phar- macist in ad- ditional post)
Lieutenant	2		2	
Second Lieut.				
Non-commissioned medical officers	5	7	4	2
Medical men	3	3	2	
Orderly men in duty for officers	3	4	2	
Men in duty for horses			2	
Total	16	20	14	5 1 (in addi- tional post)
Riding horses			2	1

Equipment of the Army Medical Department-Office

Medical Stores: Medical trunks for the unit

Officer's carrying bag      the same as the officers number  
Bags for treatment      the same as the non-commissioned  
                                         officers number

Bags of bandages      the same as the medical men  
one net



## ENCLOSURE (C), continued

Table of Organization of the Army Hospital (Inland)

	The first class	The second class	The third class	
			A	B
Maj. General	1(the chief)			
Colonel	1	1(the chief)		
Lieut. Colonel	1		1(the chief)	
Major	2			
Captain	8	5	2	1(the chief)
Second Lieutenant	16	8		1
Lieut. Colonel or Major(pharmacist)	1			
Captain(pharmacist)	2	1	1	
Second Lieutenant (pharmacist)	4	2		1
Medical officer (not specialist)	3	2	1	
Non-commissioned medical officer	52	26	3	2
Non-commissioned technical officer	3	2		
Medical man	290	150	30	2
Intendant officer	4	2		
Non-commissioned intendant officer	6	4	2	1
Total	394	204	40	17

## ENCLOSURE (C), continued

Table of Organization of the Section of the Ambulance Corps

Captain	1(the leader)
Sergeant-major (Sergeant, corporal)	1(the secretary)
(Medical) Captain	2
(Medical) Lieutenant or Second Lieut.	4
Non-commissioned medical officer	9
Medical men	36
Non-commissioned intendant officer	1
Total	54

## Equipment of the Section of the Ambulance Corps

1. Medical stores:	Amounts
Medical trunks for the unit	6 sets
Stretchers	240
Officer's carrying bag	6
Bag for treatment	9
Bag of bandages	36
2. Others:	
Utensils	

Table of Organization of the Headquarters of  
the Commissariat Ambulance Corps

Colonel or Lieut, Col. (Medical)	1(the chief)
Major (Medical)	1
Captain, Lieutenant and Second Lieut. (Medical)	1
Sergeant-major, Sergeant or Corporal	1(the driver)
Nen	8
Non-commissioned medical officers	3
Medical men	10
Intendant officer	1
Non-commissioned intendant officer	1
Total	27

## ENCLOSURE (C), continued

## Equipment of the Headquarters of the Commissariat Ambulance Corps

1. Medical stores	
Medical trunks for the unit	1 set
Officer's carrying bags	3
Bag for treatment	1
Bags of bandages	2
2. Cars	
Riding cars	2
Trucks	1

Table of Organization of the Commissariat Hospital

Lieut. Colonel or Major (Medical)	1 (with a horse)
Captains (Medical)	5
Lieutenants and Second Lieut's (Medical)	25
Captains, Lieutenants, or Second Lieut's (Pharmacist)	2
Captains, Lieutenants, or Second Lieut's (not specialist)	2
Non-commissioned medical officers	1 (engaged in 67 supply)
Non-commissioned technical officers	2
Medical officers	250
Intendant officer	1
Non-commissioned intendant officers	2
Men in duty for horses	1
Total	359 persons and one horse

## Equipment of the Commissariat Hospital

1. Medical stores	
Medical trunks for hospital use	4 sets
Sterilizer with operation-lamp for field use	8 sets
Operation-bed for field use	4 sets
Microscope and its case	2 sets
Stretchers	20 sets
Water-Supplier (B)	2 sets
X-ray apparatus for field use	1 set
Officer's carrying bags	31
Bags for treatment	14
Bags of bandages	50
Dental trunks	1 set
2. Others	
Utensils, Patient-clothes, etc.	



## ENCLOSURE (C), continued

Table of Organization of the Divisional Water-Supplying Corps

Lieut. Colonel or Major (Medical)	1
Captains, Lieutenants and Second Lieut's (Medical)	6
Captain (pharmacist)	1
Medical officers (not specialist)	2
Special medical sergeant-major	1
Non-commissioned medical officers	20
Non-commissioned technical officer	1
Medical men	90
Total	112
Special sergeant-major (of Army Service Corps)	1
Non-commissioned officers (of Army Service Corps)	4
Men (of Army Service Corps)	108
Intendant officer	1
Non-commissioned intendant officer	1
Non-commissioned technical officer in mechanical engineering	1
Non-commissioned technical officer in electrical engineering	1
Total	117
Sum total	239

## Equipment of the Divisional Water-Supplying Corps

1. Medical trunks for the unit	1 set
Trunks for the Water-Supplying Corps	1 set
Officer's carrying bags	7
Bags for treatment	4
Bags of bandages	10
2. Cars	
Riding cars	1
Trucks	28
Water-supplying Cars (A)	4

## ENCLOSURE (C), continued

Table of Organization of the Army Water-Supplying Corps

Lieut. Colonel (Medical)	1
Major (Medical)	1
Captains (Medical)	2
Lieutenants and Second Lieut's (both Medical)	10
Pharmacist Officers	2
Medical officers (not specialist)	2
Special medical sergeant-major	1
Non-commissioned Technical officers	2
Medical men	150
Total	205
Special sergeant-major	1
Non-commissioned officers	4
Men	114
Intendant officers	1
Non-commissioned intendant officers	2
Non-commissioned technical officer in electrical engineering	1
Technical expert	1
Non-commissioned technical officer in mechanical engineering	1
Assistant experts	3
Total	128
Sum total	333

## ENCLOSURE (C), continued

## Equipment of the Army Water-Supplying Corps

1. Medical Stores	
Medical trunks for the unit	1 set
Trunks for the Water-Supplying Corps	1 set
Appending trunks for the Water-Supplying Corps	1 set
Trunks for physico-chemical use	1 set
Officer's carrying bags	14
Bags for treatment	7
Bags of bandages	15
2. Cars	
Riding cars	5
Trucks	34
Water-supplying cars (A)	6

Table of Organization of the Circulating Infirmary  
of the Commissariat Ambulance Corps

Major (Medical)	1 (the chief)
Captains (Medical)	2
Lieutenants and Second Lieut's (Medical)	6
Captain, Lieutenant or Second Lieut. (Medical)	1
Non-commissioned medical officers	8
Non-commissioned technical officer	1
Medical men	50
Sergeant-major, Sergeant or Corporal	1
Men	23
Total	93

## Equipment of the Circulating Infirmary of the Commissariat Ambulance Corps

1. Medical stores	
Motor-car for treatment	1 set
Motor-car for removing poisonous gas	1 set
Officer's carrying bag	9
Bags for treatment	2
Bags of bandages	10
2. Cars	
Riding cars	1
Trucks	4



## ENCLOSURE (C), continued

## Table of Organization of the Medical Section of a Hospital-Ship

## A. Organization

Major (Medical) *	1
Captains, Lieutenants and Second Lieut's (Medical)	6
Captain, Lieutenant (Pharmacist)	1
Non-commissioned medical officers	13
Non-commissioned technical officer	1
Medical men (superior privates)	20
Medical men	60
Total	104

\* The Senior Officer

## B. Organization

Major (Medical) *	1
Captains, Lieutenants and Second Lieut's (Medical)	3
Captain, Lieutenant (Pharmacist)	1
Non-commissioned medical officers	9
Non-commissioned technical officer	1
Medical men (superior privates)	12
Medical men	34
Total	61

\* The Senior Officer

Equipment of the Medical Section of a Hospital-Ship  
(for A, and B Organization)

1. Medical stores	Amount
Medical trunks for the unit	1 set
Trunks for physico-chemical use	1 set
Medical trunks for the hospital-ship	1 set
Sterilizer with operation-lamp for field use	1 set
Microscope and its case	1 set
Officer's carrying bag	some
Bag for treatment	some
Bag for bandages	some
2. Others	
Patient-clothes	some

## ENCLOSURE (C), continued

Table of organization of the Ambulance Corps of the Front Line

	Headquarters			Company		Cart Company			Stretcher Company	
	Persons	Riding horses	Cart horses	Persons	Riding horses	Persons	Riding horses	Cart horses	Persons	Horses
Lieut. Col. or Major	1(the head)	1							1	1
Captains	1(the adjutant)	1		1(the leader)	1	1(the leader)	1		17	8
Lieutenants or Second Lieut's				2		3		3		
Special sergeant-majors	2(the secretary)			1						
Sergeant-majors				1		1			38	
Sergeants (corporals)	2(engaged in supply)			1		1				
Men (superior privates)				12					549	
Men	10			162		17				
Men (of Army Service Corps)						46		36	246	36
Total	16	2		187	1	74	4	36	851	45
NCO (of Army Service Corps)	3	3							3	3
Men (of Army Service Corps)	96	6	70						96	76
Intendant officers	1								2	
NC intendant officers	2									
NCO in sewing-work	1								1	
NCO in installation-work	1								1	
Major (Medical)	1(the chief medical officer)	1							1	1
Captain (Medical)	5								14	6
Lieutenants or Second Lieut's (Med.)	3(engaged in removing gas)	6								
Officer (Pharmacist)	3								3	
NC medical officer	22								28	
Medical men	6(engaged in removing gas)								88	
Veterinary officers	1								1	1
NC veterinary officer	1	1							1	
Men in duty for horses	10			1		4			17	
Total	249	17	70	1		4			258	87
Sum total	265	19	70	188	1	78	4	36	1,109	132

## Equipment of the Ambulance Corps of the Front Line

## 1. Medical stores

	Amount
Medical trunks for the Ambulance Corps	3 sets
Sterilizer with operation-lamp for field use	6 sets
Operation-bed for field use	6 sets
Stretcher	285 sets
Operation-tent	3 sets
Medical trunks for removing poisonous gas for Ambulance use	3 sets
Oxygen inspirator	3 sets
Oxygen respirator	3 sets
Auto-respirator	3 sets
Water-supplier (B)	3 sets
Officer's carrying bag	15
Bag for treatment	9
Bag of bandages	190

## ENCLOSURE (C), continued

## 2. Cars

Motor-car for removing poisonous gas

1 set, con-  
sisting of  
36 three cars  
70

Boiler

Ambulance

Cart

## 3. Baggage

Tent for army use

6 sets

Utensils

Utensils

Clothes in reserve

Rice, wheat etc.

Patient-clothes

Table of Organization of the Ambulance (Field) Hospital

	Persons	Riding horses	Cart- horses
Major (Medical)	1 (the chief)	1	
Captain (Medical)	3	2	
Lieutenants and Second Lieut's (Medical)	10		
Captains, Lieutenants or Second Lieut's (Pharmacist)	2		
Captains, Lieutenants or Second Lieut's (not specialist)	2		
Non-commissioned medical officers	1 (engaged in supply)		
Non-commissioned technical officers	30		
Medical men	2		
	126		
Total	180	3	
Non-commissioned officer (of Army Service Corps)	1	1	70
Men (of Army Service Corps)	89	5	
Intendant officer	1		
Non-commissioned intendant officers	2		
Non-commissioned veterinary officer	1		
Men in duty for horses	3		
Total	97	6	70
Sum Total	277	9	70
		79	



## ENCLOSURE (C), continued

## Equipment of the Ambulance (Field) Hospital (table next page)

1.	Medical stores	
	Medical trunks for hospital use	2 sets
	Sterilizer with operation-lamp for field use	4 sets
	Operation-bed for field use	4 sets
	Stretchers	20 sets
	Operation tents	2 sets
	Microscope and its case	1 set
	Medical trunks for removing poisonous gas for hospital use	2 sets
	Oxygen inspirator	2 sets
	Auto-respirator	2 sets
	Water-supplier (B)	1 set
	X-ray apparatus for field use (only in the Fourth Hospital)	1 set
	Officer's carrying bags	17
	Bags for treatment	10
	Bags of bandages	26
	Dental trunks	1 set
2.	Cars	
	Carts	68
	Boilers	2
3.	Baggages	
	Patient-clothes	6
	Tents for Army use	
	Utensils	
	Table-ware for patients	
	Rice, wheat, supplementary food and horse- forage patient-food	

\* \* \*

## F. Some statistics with relation to the Second World War: (Statistical data of war-diseases as to areas, annuals, and kinds of sickness.)

## Remarks:

1. The chief infective diseases include the following: plague, cholera, typhoid, paratyphoid, meningitis epidemica, dysentery, small-pox, scarlet-fever, diphtheria, eruptive fever and dengue-fever.
2. These statistical data have been made by investigating total numbers and percentages of cases as to areas all precise statistical materials being burned up by air-raids. It is regretful that we could not do otherwise at present.
3. Any disease more severe than drill-repose was included in war diseases, about 40% of which were treated at hospitals.

## ENCLOSURE (C), continued

## Outbreak of war diseases in China

Classification	1942	1943	1944	1945	Total	%
Main infectious diseases	13,903	13,360	14,296	13,010	54,569	2.0
Malaria	69,515	66,800	71,480	65,050	272,845	10.0
Lung-T.B.	97,314	93,520	100,072	91,070	381,976	14.0
Pleuritis	55,612	53,440	57,184	52,040	218,276	8.0
Other T.B.	13,903	13,360	14,296	13,010	54,569	2.0
Beriberi	62,560	60,120	64,332	59,545	246,557	9.0
Other diseases relating to general condition of body	41,709	40,080	42,888	39,030	163,707	6.0
Mental diseases	20,853	20,040	21,444	19,515	81,852	3.0
Other nervous diseases	34,755	33,400	35,740	32,525	136,420	5.0
Other diseases of resp. organs	41,709	40,080	42,888	39,030	163,707	6.0
Diseases of circulatory organs	27,806	26,720	28,592	26,020	109,138	4.0
Diseases of nutritive organs	55,612	53,440	57,184	52,040	218,276	8.0
Urinary and genital organs	10,426	10,020	10,722	10,737	40,925	1.5
Venereal diseases	4,170	4,008	4,211	3,903	16,369	0.6
Ophthalmic diseases	13,903	13,360	14,296	13,010	54,569	2.0
Otological diseases	2,780	2,674	2,859	2,602	10,915	0.4
Cutaneous diseases	10,426	10,020	10,722	9,757	40,925	1.5
Diseases of kinetic organs	20,853	20,040	21,444	19,515	81,852	3.0
Wounded	1,706	40,080	42,888	39,030	163,704	6.0
Other injuries	55,612	53,522	57,261	51,041	217,436	8.0
Total	695,127	668,084	714,876	650,500	2,728,587	100.0

## ENCLOSURE (C), continued

## Outbreak of war diseases in south areas

Classification	1942	1943	1944	1945	Total	%
Main infective diseases	18,510	22,982	21,744	11,014	74,250	2.0
Malaria	185,100	229,820	217,440	110,140	742,500	20.0
Lung-T.B.	64,785	80,437	76,104	38,549	259,875	7.0
Pleuritis	37,020	45,964	43,488	22,028	148,500	4.0
Other T.B.	9,255	11,491	10,872	5,507	37,125	1.0
Beriberi	101,805	126,401	119,592	60,577	408,375	11.06
Other diseases relating to general condition of body	92,500	114,915	108,725	55,070	371,260	10.0
Mental diseases	27,765	34,473	32,616	16,521	111,375	3.0
Other nervous diseases	55,604	67,837	64,145	32,491	220,077	5.9
Other diseases of resp. organs	56,455	70,095	66,219	33,592	226,361	6.1
Diseases of circulatory organs	74,040	91,928	86,976	44,056	297,000	8.0
Diseases of nutritive organs	64,040	80,437	76,104	218,549	439,130	7.0
Urinary and genital organs	9,225	11,491	10,872	5,507	37,125	1.0
Venereal diseases	4,628	5,749	5,436	2,753	18,566	0.5
Ophthalmic diseases	10,180	12,640	11,959	6,057	40,836	1.1
Otological diseases	8,329	10,341	9,784	4,956	33,410	0.1
Cutaneous diseases	4,628	5,749	5,436	2,753	18,566	0.5
Diseases of kinetic organs	18,510	22,982	21,744	11,014	74,250	2.0
Wounded	46,275	57,490	54,360	27,530	185,655	5.0
Other injuries	36,071	45,928	43,639	22,028	147,666	4.0
Total	924,805	1,149,150	1,087,255	730,692	3,891,902	100.0



## ENCLOSURE (C), continued

## Outbreak of war diseases in Manchuria

Classification	1942	1943	1944	1945	Total	%
Main infective diseases	9,100	8,000	8,180	4,100	29,380	2.0
Malaria	18,200	16,000	16,360	8,200	58,760	4.0
Lung-T.B.	113,750	100,000	102,250	51,250	367,250	25.0
Pleuritis	54,600	48,000	49,080	24,690	176,280	12.0
Other T.B.	9,100	8,000	8,180	4,100	29,380	2.0
Beriberi	27,300	24,000	24,540	12,300	88,140	6.0
Other diseases relating to general condition of body	31,850	28,000	28,630	14,350	102,830	7.0
Mental diseases	13,650	12,000	12,270	6,150	44,070	3.0
Other nervous diseases	2,750	20,000	20,450	10,250	73,450	5.0
Other diseases of resp. organs	27,300	24,000	24,540	12,300	88,140	6.0
Diseases of circulatory organs	18,200	16,000	16,360	8,200	58,140	6.0
Diseases of nutritive organs	22,750	20,000	20,450	10,250	73,450	5.0
Urinary and genital organs	5,460	4,800	4,908	2,460	17,628	1.2
Venereal diseases	3,185	2,800	2,863	1,435	10,283	0.7
Ophthalmic diseases	3,640	3,200	3,272	1,640	11,752	0.8
Otological diseases	1,365	1,200	1,227	615	4,407	0.3
Cutaneous diseases	6,825	6,000	6,135	3,075	22,035	1.5
Diseases of kinetic organs	11,375	10,000	10,225	5,125	36,725	2.5
Wounded	18,200	16,000	16,360	8,200	58,760	4.0
Other injuries	36,400	32,000	32,720	16,400	117,520	8.0
Total	455,000	400,000	409,000	205,000	1,469,000	100.0

## ENCLOSURE (C), continued

## Statistics of casualties as to cause in various places

			by rifle	by gun or cannon	by explosion	by close combat	other	total
China	Wounded	%	60.8	21.4	11.3	0.5	6.0	100
		nos.	53,504	18,832	9,944	440	5,280	88,000
	Dead	%	77.2	11.1	8.1	1.0	2.6	100
		nos.	33,968	4,884	3,564	440	1,144	44,000
South	Wounded	%	55.0	24.2	12.0	0.5	8.5	100
		nos.	107,197	47,167	23,388	585	16,567	194,904
	Dead	%	58.2	14.6	24.3	0	2.9	100
		nos.	262,119	65,755	109,442	0	13,061	450,377
Manchu- ria	Wounded	%						
		nos.						4,641
	Dead	%						
		nos.						1,635

## Results of the Wounded

	Recovered	Dead	Repatriated	Remained	Total
China	32.9%	32.4%	14.7	20.0	100
South	17.1%	49.5%	19.3	13.1	100
Manchu- ria	50.2%	28.8%	18.1	2.9	100

Remark: Results in Manchuria could not be considered to be exact.

## Results of War Diseases

1. Sum total during the war.
2. Results of in-patients only.

	recovered	dead	sent to Japan proper	remained
China	87.7%	0.8%	10.4%	1.1%
Manchuria	91.5%	0.6%	5.0%	1.4%
South	88.0%	1.6%	5.9%	4.5%

The materials concerning to Manchuria were presumed.

## ENCLOSURE (C), continued

## Result of repatriated patients from China

		Number of patients	Recovery (%)	dead (%)	discharged (%)	leave hospital unrecovery (%)	remain number
1941	Wounded	20,367	2,352 (11.55)	111 (0.54)	5,935 (39.39)	4,715 (23.15)	1,204 (35.37)
	Sick	69,980	23,120 (33.04)	2,563 (3.66)	14,009 (20.02)	12,605 (18.01)	17,683 (25.27)
1942	Wounded	11,834	877 (7.41)	111 (0.94)	3,444 (29.10)	2,548 (21.53)	4,854 (41.52)
	Sick	35,743	7,436 (20.80)	2,061 (5.77)	8,038 (22.49)	7,098 (19.81)	11,110 (31.08)
1943	Wounded	7,196	384 (5.34)	37 (0.51)	2,286 (31.77)	1,661 (23.08)	2,828 (39.30)
	Sick	26,239	5,354 (20.4)	1,784 (6.8)	6,023 (22.95)	6,525 (24.87)	553 (24.97)
1944	Wounded	8,563	687 (8.02)	71 (0.82)	2,418 (28.24)	2,017 (23.55)	3,370 (39.36)
	Sick	29,048	8,289 (28.54)	11,921 (6.61)	7,120 (24.51)	5,338 (18.38)	6,380 (21.91)
1945 until April	Wounded	4,790	235 (4.91)	24 (0.5)	910 (19.0)	538 (11.23)	3,083 (64.36)
	Sick	14,895	2,582 (17.33)	310 (2.08)	2,043 (13.71)	2,020 (13.56)	7,940 (53.31)
total	Wounded	52,750	4,535 (8.60)	254 (0.67)	15,043 (28.52)	11,479 (21.76)	21,339 (40.45)
	Sick	175,905	46,781 (21.59)	8,639 (4.91)	37,233 (21.17)	33,586 (19.09)	49,666 (28.23)
total		228,655	51,316 (22.44)	8,993 (3.93)	52,276 (22.86)	40,065 (19.71)	71,005 (31.05)



## ENCLOSURE (C), continued

## Results of repatriated patients from southern territories

		Number of patients	Recovery (%)	dead (%)	discharged (%)	leave hospital unrecovery (%)	remain number (%)
1942	Wounded	5,198	811 (18.6 )	51 (0.98)	122 ( 2.35)	264 ( 5.08)	3,950 (75.97)
	Sick	12,486	2,900 (23.78)	203 (1.63)	255 ( 2.04)	993 ( 7.95)	8,066 (64.60)
1943	Wounded	8,570	1,306 (15.24)	49 (0.57)	1,430 (16.69)	2,210 (25.79)	3,575 (41.72)
	Sick	37,131	13,223 (35.61)	853 (2.3 )	2,488 ( 6.7 )	6,911 (18.34)	13,656 (36.78)
1944	Wounded	7,417	1,104 (14.88)	54 (0.73)	1,610 (21.71)	1,634 (22.03)	3,015 (40.55)
	Sick	37,169	15,260 (14.88)	992 (0.73)	2,573 (21.71)	6,737 (22.03)	11,607 (40.65)
1945 until April	Wounded	4,208	828 (19.68)	41 (0.97)	238 ( 5.11)	328 ( 7.7 )	2,773 (69.50)
	Sick	18,085	7,284 (40.08)	187 (1.02)	1,702 ( 1.41)	2,820 (15.59)	6,082 (33.69)
total	Wounded	25,393	4,049 (15.95)	195 (0.77)	3,400 (13.39)	4,436 (17.47)	13,313 (52.43)
	Sick	104,871	38,736 (36.94)	2,235 (2.13)	7,015 ( 6.69)	17,461 (16.65)	39,421 (37.59)
total		130,264	42,785 (32.84)	2,430 (1.87)	10,418 ( 8.0 )	21,897 (16.81)	52,734 (40.48)

## ENCLOSURE (C), continued

## Classification of diseases of repatriated patients from Manchuria

Classification	1941	1942	1943	1944	1945	Total	°/oo
Infectious diseases	159	104	218	173	42	699	9.1
Malaria	37	43	86	30	17	213	2.8
Phthisis (T.B.)	4,272	7,731	6,472	6,987	1,404	26,868	349.8
Consumptive diseases except T. B.	1,729	1,968	1,586	1,724	304	7,311	95.2
Beriberi	391	507	437	473	67	1,875	24.4
Other diseases relating to general condition of body	257	381	344	367	52	1,401	18.2
Mental diseases	80	149	121	129	18	497	6.5
Other nervous diseases	745	1,220	699	970	128	3,762	49.0
Pleurisy	4,037	4,747	3,707	441	532	17,464	227.4
Other diseases of respiratory organs	385	539	695	480	129	2,228	29.0
Diseases of circulatory organs	168	348	266	277	41	1,100	14.3
Diseases of nutritive organs	502	764	610	721	73	2,670	34.8
Urinary and genital organs	165	238	259	252	38	1,002	13.0
Venereal diseases	100	143	126	127	22	518	6.7
Ophthalmic diseases	196	437	246	342	37	1,258	16.4
Otological diseases	115	147	94	121	28	505	6.6
Cutaneous diseases	73	85	80	72	8	318	4.1
Diseases of kinetic organs	145	198	180	161	23	707	9.2
Wounded	44	41	23	23	8	139	1.8
Accident injuries	796	1,171	1,093	972	177	4,209	54.8
Other injuries	594	291	692	370	121	2,068	26.9
Total	14,990	21,302	18,034	19,212	3,269	76,807	1000.0

## ENCLOSURE (C); continued

## Classification of diseases of repatriated patients from South-Areas

Classification	1942	1943	1944	1945	Total	%oo
Infectious diseases	111	621	793	67	1,592	18.7
Malaria	3,305	10,937	10,827	2,434	27,553	324.5
Phthisis (T.B.)	1,932	3,948	2,417	1,272	9,569	112.7
Consumptive diseases except T.B.	420	1,024	710	184	2,338	27.5
Beriberi	487	1,634	2,008	224	4,353	51.3
Other diseases relating to general condition of body	282	633	477	198	1,590	18.7
Mental diseases	136	422	384	73	1,015	12.0
Other nervous diseases	518	860	930	207	2,515	29.6
Pleurisy	1,022	1,384	1,723	634	5,263	62.0
Other diseases of respiratory organ	489	565	472	189	1,715	20.0
Diseases of circulatory organs	100	185	173	41	499	5.9
Diseases of the nutritive organs	620	1,207	1,479	218	3,524	41.5
Urinary and genital diseases	104	215	224	34	577	6.8
Venereal diseases	70	133	82	23	308	3.6
Ophthalmic diseases	164	342	193	52	751	8.8
Otological diseases	104	204	172	37	517	6.1
Cutaneous diseases	68	141	69	21	299	3.5
Diseases of kinetic organs	198	334	243	113	888	10.5
Wounded	5,148	4,179	3,723	1,326	14,376	175.2
Accident injuries	1,181	1,335	1,401	293	4,215	50.0
Other injuries	143	447	297	63	950	11.2
Total	16,602	31,250	28,797	3,258	34,907	1000.0



*ENCLOSURE (C), continued*

## G. Curriculum of Civilian Medical Schools before and during the War for Doctors, Dentists and Nurses.

1. Doctors.

- a. middle school -- medical academy (4 years before the war, 3 years and a half during it.)
- b. middle school -- scientific section of high school -- medical college or medical section of university. (4 years before the war, 3 years and a half during it.)

2. Dentists.

middle school -- dental academy (3 years before and during the war.)

3. Nurses.

national school -- nurses' training school (both public and private, 2 or 3 years.)



ENCLOSURE (D)





## ENCLOSURE (D)

TRANSLATION OF TITLES OF ARTICLES IN VARIOUS  
JAPANESE MEDICAL JOURNALS WHICH HAVE BEEN SUBMITTED TO WDC  
FOR FORWARDING TO ARMY MEDICAL LIBRARY

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ENCLOSURE (E)



## ENCLOSURE (E)

MATERIEL AND EQUIPMENT COLLECTED BY FIELD UNIT NO. 4  
5250 TECHNICAL INTELLIGENCE COMPANY, MEDICAL SECTION

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## ENCLOSURE (E)

MATERIEL AND EQUIPMENT COLLECTED BY FIELD UNIT NO. 4  
5250 TECHNICAL INTELLIGENCE COMPANY, MEDICAL SECTION

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FIELD UNIT NO. 4  
5250 TECHNICAL INTELLIGENCE COMPANY  
Medical Section

ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500. SHIPPING LIST,  
BOX "A".

ITEM NUMBER	TENTATIVE NOMENCLATURE
79	Kit, surgical instrument, Navy
80	Paper, X-ray, Navy
81	Blood Plasma, human M-9
82	Charts, wound, type "A", Navy
83	Charts, wound, type "A", Navy
84	Set, still heads for As. det.
85	Apparatus, lung-tying, Kilsinar's
86	Set, absorbing tubes, As. det.
87	Set, comparator, PH det.
88	Accessories, As. det.
89	Set, syphilis test M-10
90	Set, amputation knives
91	Hygrometer, hair
92	Set, pipette and syringe
93	Colorimeter and accessories
94	Set, bougies, metal
95	Set, artery clips
96	Set, "heating lever"
97	Set, accessories, As. det.
98	Still, glass small

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500. SHIPPING LIST,  
BOX "B".

ITEM NUMBER	TENTATIVE NOMENCLATURE
99	Meter, blood pressure, large
100	Microcamera, new type
101	Set, cranial drills
102	Goggles, white, cotton
103	Kit, chlorine cet., OT
104	Psychometer, electric
105	Conductivitymeter
106	Microsaccharimeter M-10
107	Case, instrument, plastic
108	Set, hypodermic, small

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
109	Set, scalpel
110	Set, arsenic test M10
111	Accessories, microscope, Leitz
112	Stereoscopes, 2 each, (different)
113	Goggles, "Maliki"-type
114	Appliance, chest measuring, Navy
115	Cap, surgery, Navy
116	Flashlight, Navy
117	Instrument "automatic filling", Navy
118	Scissors, bullet, Navy
119	Extractor, bullet, Navy
120	Accessories, incubator
121	Catathermometer
122	Tonometer
123	Lever, jaw
124	Set, microprinting, "Suzuki's"
125	Apparatus, vision-testing
126	Set, test lenses, spherical
127	Set, dissecting, small
128	Ophthalmoscope, new type
129	Meter, touch perception
130	Meter, pulse
131	Kit, dental accessories M02
132	Set, dissecting, large
133	Set, probe
134	Attachments, diathermy
135	Set, As. det., "Katsue Ishi"
136	Set, test lenses, cylindrical

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "C"

ITEM NUMBER	TENTATIVE NOMENCLATURE
15	Lung capacity meter
137	Microcamera, small
138	Set, battery, with rheostat
139	Goggles, X-ray
140	Instrument, orthopedic, Sheimar
141	Set, bottles, small
142	Set, instrument, post-mortem
143	Case, first aid, large, Navy
144	Set, eye surgery
145	Set, test lenses, cylindrical
146	Searchlight, 4.5 volt, Navy
147	Searchlight, 3.0 volt, Navy
148	Kit, water testing, field
149	Apron, X-ray operators
150	Mask, X-ray operators
151	Gloves, X-ray operators
152	Stage, microscope, electrically heated

## ENCLOSURE (E), continued

ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "D".

ITEM NUMBER	TENTATIVE NOMENCLATURE
22	Indirect blood-transfusion set
34	Camera, X-ray, 35mm, Navy type, 2 each
153	Set, dental surgery, No. 2, Navy
154	Microtome, small
155	Set, surgical instrument, nasal
156	Set, electric drill
157	Apparatus, anaesthesia, 2 each
158	Restraining apparatus, 2 each

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500. SHIPPING LIST, BOX "E".

ITEM NUMBER	TENTATIVE NOMENCLATURE
33	Camera, 35mm., X-ray, Army type, 2 each
159	Set, lead characters, X-ray marking
160	Set, syringe
161	Viewer, X-ray
162	Set, pH det., colorimeter M10
163	Meg-ohmmeter
164	Cup, suction
165	Sleeves, rubber
166	Bandage, eye, celluloid
167	Set, electric cautery
168	Set, burette
169	Set, instrument, orthopedic, "Osuga"
170	Set, pulmonary
171	Set, urine analysis M10
172	Liners, boot, white cotton

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "F".

ITEM NUMBER	TENTATIVE NOMENCLATURE
30	Microscope, fold., med., Leitz
31	Microscope, fold., med., new type
173	Set, flexible bougie
174	Plate counters
175	Set, arsenic test M10
176	Microtomes, 2 each
177	Colorimeter
178	Apron, rubber



## ENCLOSURE (E), continued

ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "G".

ITEM  
NUMBER

## TENTATIVE NOMENCLATURE

26	Polygraph, with case
179	Sun lamp, type 1
180	Haemoglobinometer M10
181	Vulcanizer, dental, complete M02
182	Stand, laboratory, dental M02
183	Vulcanizing mould, large, dental M02
184	Vulcanizing mould, small, dental M02
185	Asbestos block, dental M02
186	Anvil, dental M02
187	Mallet, dental M02
188	Blowpipe, dental M02
189	Kit, dental, field, Navy M02
190	Ladle, dental M02
191	Jaw holders, impression, full jaw, assorted, 2 each M02
191	Jaw holders, impression, partial, 2 each M02
192	Denture holder, large M02
193	Denture holder, small M02
194	Gas generator, small, dental M02
195	Burner, Bunsen, lab.
197	Set, retractors
198	Splints, arm and hand, wooden, 2 each
199	Braces, 3 each
200	Screws, medical, assorted
201	Bone plates, orthopedic, assorted
202	Catathermometer, Army type
203	Stage micrometer
204	Splints, foot, metal, 2 each
205	Brace, neck
206	Tube, fused quartz
207	Braces, orthopedic, metal, assorted
209	Accessories, blood counting app.
210	Set, eye dropper syringe
211	Tourniquets, with special clamp
212	Thermometers, incubator
213	Plate, glass
214	Plates, Red Cross
215	Reservoir, whole blood
216	Bougie, flexible, plastic
217	Drill, hand
218	Shoulder brace, leather
219	Covers, med. microscope, 3 each
220	Traction hooks, 2 each
221	Cages, insect, 2 each
222	Bags, urine, paper
223	Cover, medical O instrument, substitute

## ENCLOSURE (E), continued

ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "H".

ITEM NUMBER	TEATATIVE NOMENCLATURE
224	Surgeon's clothing, white, 2 sets
225	Kit, Gas casualty, new type QC
226	Kit, Gas casualty, new type QC
227	Kit, first aid, pilots, type A
228	Kit, first aid, pilots, type B
229	Kit, first aid, small, new type
230	Kit, first aid, for tank crew
231	Test chart, color blindness
232	Otogoniometer
233	Polygraph, Dr. Kure-Sakai's
234	X-ray exposuremeter

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "I".

ITEM NUMBER	TENTATIVE NOMENCLATURE
238	Film viewer, 35mm. individual X-ray photographs
239	Double boiler, tin-lined, for preparation of medicine
241	Accessories, incomplete, for diathermy set, large
244	Set, body measurement
249	Tank, developing, 35mm. ind. X-ray plates
250	Tourniquet, pneumatic
251	File, glass cutting, 2 each
252	Set, abdominal retractor
253	Holder, platinum wire, 2 each
254	Insignia, patients, officers and enlisted men
255	Knives, splint-making, 2 each
256	Kit, tool, splint making, 2 each
259	Kit, first aid, first modification
260	Kit, first aid, aircraft, second modification
263	Lamp, darkroom, X-ray
265	Set, film marking, X-ray
266	Cup, medium, feeding
267	Set, aspirator, with attachments
268	Books, color perception charts
269	Books, color perception charts in English

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## ENCLOSURE (K), continued

ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "J".

ITEM NUMBER	TENTATIVE NOMENCLATURE
245	Set, amputation instruments, small
246	Set, mechanical eyechart
247	Tensometer, back muscles
257	Set, surgical instrument in canvas carrying case
258	Kit, field, Medical Officers, substitute type, 2 each
264	Set, nasal washing
270	Penicillin mold M12

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "K".

ITEM NUMBER	TENTATIVE NOMENCLATURE
271	Apparatus, examination, 3 types, vet.
272	Apparatus, castrating, vet.
273	Apparatus, clysterizing, vet.
274	Set, pregnancy examination, vet.
275	Set, water testing, vet. M12
276	Apparatus, clysterizing, siphon-type, vet.
277	Hone
278	Apparatus, urine-absorption, vet.
279	Canvas, irrigator, vet.
280	Set, syringe, successive, vet.
281	Kit, medical, vet.
282	Psychometer, 2 each, vet.
283	Apparatus, liquid medicine, vet.
284	Kit, surgical, vet.
285	Kit, surgical, vet.

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "L".

ITEM NUMBER	TENTATIVE NOMENCLATURE
286	Colorimeter, vet.
287	Microtome, vet.
288	Kit, decontaminating, vet. QC
289	Mirror, headband, vet.
290	Set, water testing, vet.
291	Syringe set, vet.
292	Calipers, vet.
293	Apparatus, surgical, Russian type, vet.



## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
294	Balance, vet.
295	Sphygmomanometer, American type, vet.
296	Sterilizer, Russian type, vet.

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "M".

ITEM NUMBER	TENTATIVE NOMENCLATURE
297	Set, castrating, vet.
298	Set, surgical instrument, vet.
299	Set, surgical instrument, vet.
300	Apparatus, castrating, vet.
301	Scissors, vet.
302	Lamps, kerosine, 4 types, vet.
303	Lamps, gasoline, 3 types, vet.
304	Bellows, vet.
305	Syringe, "Julafer", vet.
306	Instrument, mouth inspecting, vet.
307	Lamp, operating, vet.
308	Syringe, vet.
309	Colorimeter, vet.
310	Tail cutter, vet.
311	Irrigator, vet, 2 each
312	Searchlamp
313	Splint, horse leg, vet.
314	Set, syringe, vet.
315	Instrument, surgical, vet.
316	Set, syringe, vet.
317	Curettes, vet.
318	Syringe, saline, vet.

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "N".

ITEM NUMBER	TENTATIVE NOMENCLATURE
319	Kit, veterinary medicine, 7 types
320	Kits, gas casualty, veterinary, 5 types QC
321	Kit, dental, vet. MO2
322	Kit, veterinary medicine, German, 2 types
323	Kit, syringe, veterinary, 3 types
324	Kit, First Aid, tank, medical
325	Kit, gas scout
326	Pack, medical, back, privates

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
327	Kit, medical, back, NCO'S
328	Pouch, medical, enlisted man's
329	Pouch, medical officers
330	Pack, medical, tropical countries, privates MO1
331	Pack, medical, tropical countries, NCO'S

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ITEM TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "Q"

ITEM NUMBER	TENTATIVE NOMENCLATURE
332	Vulcanizer, dental
333	Kit, "iron and needle", vet.
334	"Binder", vet.
335	Container, cloth, water resisting, vet.
336	Support, horse knee, vet.
337	Filter, type undetermined, glass and metal, vet.
338	Set, knives, dissecting, vet.
339	Lamp, electric, vet.
340	Syringe, small, vet.
341	Thermometer, vet.
342	Shears, vet. with leather case.
343	Furnace, petroleum
344	Instruments, dental, 7 types, vet.
345	Condenser, glass, vet.
346	Sampler, fecal matter, horse
347	Syringe pump, vet. 2 types
348	Instrument, type undetermined, vet.
349	Holder, needle, vet.
350	Curette, vet.
351	Retractor, vet. assorted, 7 types.
352	Sound
353	Scissors
354	Needle, spinal
355	Tail cutter
356	Bone saw
357	Flag, hospital, vet.
358	Ureters, two types, vet.
359	Banners, vet. commissary, 2 each
360	Saws, Gigle, vet.
361	Curettes, plastic, vet. 4 types
362	Syringe, small, vet.
363	Medicine feed bag, horse, vet.
364	Samples of brushes, combs, etc. vet.
365	Syringe, glass with pipettes
366	Kit, gas casualty treatment, vet.
367	Muzzle, dog, vet.
368	Filtration apparatus, vet.
369	Set, orthopedic instru., vet.
370	Cutter, tail, vet.

## ENCLOSURE (E), continued

ITEM  
NUMBER

## TENTATIVE NOMENCLATURE

371	Hood, horse, vet.
372	Stethoscope, vet.
373	Kit, vet medicine, cloth bag.
374	Container, leather for surgical instruments, vet.
375	Kit, vet. small
376	Speculum, vaginal, vet. 5 types
377	Catheters, rubber, vet.
378	Forceps, vet.
379	Cutters, vet.
380	Rongeurs, vet. 2 each
381	Scissors, vet. 2 each
510	Lucene sol. M02
511	Lactylphenetidin pdr. M12
512	Lodinon amps. M12
513	Luetenol amps. M12
514	Lienalin M12
515	Livealin amps. M12
516	Labon sol. M12
517	Migozai tab. M12
518	Miniglin amps. M12
519	Mogrol amps. M12
520	Moljudol amps. M12
521	Myctanin amps. M12
522	Mizuhonin pdr. M12
523	Mibunol pdr. M12
524	Mizuhonin sol. M12
525	Madarmon pdr. M12
526	Neobosan amps. M12
527	Neo Psychorin M12
528	Neo Resin M12
529	Neo Cain M12
530	Neo Dispetal M12
531	Neo Albasil M12
532	Neo Ehramisol amps. M12
533	Neo Geburti amps. M12
534	Neo Urihin M12
535	Nutrogen M12
536	Natagon M12
537	Normalactol sol. M12
538	Normaton pdr. M12
539	Neo Chramisol M12
540	Otolysin M12
541	Opostatin tab. M12
542	Opogenin amps. M12
543	Opogenin pdr. M12
544	Opostatin crys. M12
545	Ovaharmon tab. M12
546	Oophormin amps. M12
547	Oporenin M12
548	Ovastron amp. M12
549	Oryzanin amps. M12
550	Osvarsan M12
551	Omnin amp. M12
552	Ozaenol M12
553	Ovisan tab. M12
554	Perosulf amps. M12



## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
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555	Pyogenol amps. M12
556	Puberogen amp. M12
557	Para Thiosalcol amps. M12
558	Panos pdr. M12
559	Prokliman tab. M12
560	Phosphoric Acid tab. M12
561	Philopon tab. M12
562	Prostigmin "Roche" amps. M12
563	Peristatin amps. M12
564	Peer San amps. M12
565	Prae Harmon M12
566	Ponsil sol. amps.
567	Ponsil pdr.
568	Pyriseptin
569	Proseptin tab.
570	Pelanin amps.
571	Pelanin Benzoat amps.
572	Phytin crys.
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596	Sulfaguanidum tablets
597	Samidol amps.
598	Solustibosan amps.
599	Solustibosan sol.
600	Syphilis Serodiagnostics
601	Seragazome Black Hair Dye
602	Strychnine Nitrate pdr.
603	Salicylo Salicylic acid pdr.
604	Slaso Brocanon amps.
605	Sulzol pdr.
606	Sajaurin amps.
607	Suguiro amps.
608	Silinal amps.
609	Salomethyl ointment
610	Skoka Ikenyo tab.
611	Sedalon tab.

## ENCLOSURE (E), continued

ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "P".

ITEM  
NUMBER

## TENTATIVE NOMENCLATURE

419	Aethynal M12
420	Aktor amps. M12
421	Aluesin amps. M12
422	Antistreptococcic Serum for Scarlet Fever M10
423	Anti Serum against Weil's disease M10
424	Antireysipelatic Vaccine M10
425	Acetoanilid pdr. M12
426	Antasthol amps. M12
427	Atonin Y. T. amps. M12
428	Athinon amps. M12
429	Adiplon amps. M12
430	Antimohin amps. M12
431	Agomensin amps. M12
432	Anti-Typhoid vaccine tabs. M10
433	Allestin amps. M12
434	Antimonial amps. M12
435	Argent Colloidal /Vagin M12
436	Agomensin tablets M12
437	Antitussin M10
438	Baccain Sol. amps.
439	Blutose, pdr.
440	Bi-Distilled Water, amps.
441	Bluklan amps.
442	Bitomason tablets.
443	Bromiveton amps.
444	Borroginol Ointment.
445	Blood Plasma, normal, human M09
446	Crysotan M12
447	Ciba Ephinephrinechloride, amps. M12
448	Cumarin pdr. M12
449	Cruculon liq. M12
450	Cornidin amps. M12
451	Cardinon amps. M12
452	Cepharanthin amps. M12
453	Cepharanthin tablets M12
454	Carcon M12
455	Calysanin pdr. M12
456	Ciba Epinephrine sol. M12
457	Choleretin amps. M12
458	Convalon amps. M12
459	Campanol sol. M12
460	Cocatin pdr. M12
461	Cholegol pdr. M12
462	Chininum Aethyl Carbonicum pdr. M12
463	Cibalbumin amps.
464	Dazol sol. M12
465	Digifoline sol. M12
466	Epirenamine amps. M12
467	Epirenamine sol. M12
468	Ephedrine Nagai, 5 grams M12
469	Epheptol amps. M12
470	Equijodin pdr. M12
471	Equbromin pdr. M12

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
472	Evipan Natrium M12
473	Fondent ointment M12
474	Ferrophytin Pills M12
475	Ferrophytin crystals M12
476	Gynadol amps. M12
477	Gono Ostran tablets M12
478	Glubrom pdr. M12
479	Gono-Serovaccine M12
480	Guajacolum M12
481	Guajacolum camphorate pdr. M12
482	Gono Broccanon amps. M12
483	Gerbamin M12
484	Guajacol Exihose M12
485	Gitosan amps. M12
486	Homoflavin amps. M12
487	Hodin amps. M12
488	Hydein pdr. M12
489	Hydnocarin amps. M12
490	Heilmin amp. M12
491	Hiscoval amps. M12
492	Heisgen sol. M12
493	Haematype M12
494	Heminal M12
495	Hydrocodein Phosphoricum M12
496	Ichthol Vagin M12
497	Interenin amps. M12
498	Isatole tablets M12
499	Iflon amp. M12
500	Iveton amps. M12
501	Jodkali Vagin M12
502	Juvamon amps. M12
503	Jecora M12
504	Jod Broccanon amps.
505	Jod Polytamin M12
506	Kavidol pdr. M12
507	Kalium Sulfaguajacol cry. M12
508	Kaeflose sol. M12
509	Katol M12
612	Soxyl pdr.
613	Secartin amps.
614	Sexanol
615	Stapion tab.
616	Splenogen amps.
617	Tubconin amps. M2
618	Tuberculin M10
619	Tanvonin M12
620	Taltarin pdr. M12
621	Taltarin tab. M12
622	Takastin Atropin amps. M12
623	Taka Diastase tablets M12
624	Tetropotoxine amps. M12
625	Thymitussin sol. M12
626	Tussiast amps. M12
627	Tropococain hydrochloride amps. M12
628	Thyradin amps. M12
629	Thyradin sol. M12



## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
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630	Thymophogen amps. M12
631	Thymophogen pdr. M12
632	Toricalo M12
633	Tonirop M12
634	Tonikum "Roche" sol. M12
635	Tusoin pdr. M12
636	Tenesmin amps. M12
637	Utro Proseptin amps. M12
638	Utro Brocanon amps. M12
639	Umarmon amps. M12
640	Urinon pdr. M12
641	Urargol amps. M12
642	Viton amps. M12
643	Vioform antiseptic M12
644	Yatren Casein amps. M12

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "Q".

ITEM NUMBER	TENTATIVE NOMENCLATURE
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645	Blood Serum, Human M10
646	Phosphoric Acid tablets M12
647	Codein pdr. M12
648	Philopon tablets M12
649	Neo-Calgonogen amps. M12
650	Detoxol "Banyu" M12
651	Berinese solution M12
652	Carotin amps. M12
653	Percamin-ol amps. M12
654	Tomipron M12
655	Kromozin sol. M12
656	Sapitone sol. M12
657	Mayer's reagent M12
658	Bismutin M12
659	Lienalin M12
660	Salo Urtin M12
661	Folia Digitalis Concisa M12
662	Bluklagen M12
663	Bismisol M12
664	Cylotropin M12
665	Gasooedem-Serum, "Behring" M10
666	Cocaine Hydrochloride amps. M12
667	Kehsin pdr. M12
668	Neothersin pdr. M12
669	Pituglasin amps. M12
670	Hypoform M12
671	Tubunic "Roche" M12
672	Tacarose M12
673	Promptin amps. M12
674	Sulmon M12

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
675	Monponin M12
676	Natro-astivarsan M12
677	Javamon M12
678	Saveolnatrium M12
679	Arsaminal M12
680	Spirocid M12
681	Calkose M12
682	Hisogasulin M12
683	Peniocol M12
684	Sulfehramisol M12
685	Neo Arzenol M12
686	Magna-C M12
687	Lobelinum Hydrochloride M12
688	Lacarnol M12
689	Cornidin M12
690	Sajodin M12
691	Myo-Arsemin M12
692	Neosavial M12
693	Numal "Roche" M12
694	Hospitan M12
695	Isopral M12
696	B. Z. tablets M12
697	Analgesin M12
698	Thromberry M12
699	Pyridinin-Diglucoseschwefligesaures Natrium M12
700	Scoloid M12
701	Tanapan M12
702	Scopon M12
703	Ergotin "Futaba" M12
704	Tamaokisery akusho M12
705	Fastase M12
706	Tepuchi-Matsu M12
707	Neo-Thrombin M12
708	Ovobral M12
709	Clauden Pellets M12
710	Icterosan M12
711	Rateol M12
712	Teberan amps. M12
713	Totumit M12
714	Berinese amps. M12
715	Tribismin M12
716	Jusonin M12
717	Brotanin M12
718	Pituglasin M12
719	Mono Acigul M12
720	Mecikre M12
721	Trubaratin M12
722	Cataflavin M12
723	Papayotase M12
724	Romunaharmon M12
725	Provitamin A M12
726	Kuhtamin M12
727	Spirobismol M12
728	Gynergen M12
729	Myo Salvarsan M12
730	Renuharmon M12

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
731	Aktcor M12
732	Digilanogen sol. M12
734	Digilanogen amps. M12
735	Pyolysin M12
736	Acykal M12
737	Sandorman M12
738	Kiosin M12
739	Neocain M12
740	Danmeck M12
741	Endojodin M12
742	Kallikrun M12
743	Indoramin M12
744	Brotacin M12
745	Ganyakusui M12
746	Aneme M12
747	Lechtenin M12
748	Coca colae tab. M12
749	Jodipin M12
750	Orthoform M12
751	Langela M12
752	Edera M12
753	Shitsu M12
754	Blustin M12
755	Omnadin M12
756	Adnaldin M12
757	Coagulin "Ciba" M12
758	Thrombrin M12
759	Arabrogen M12
760	Globin sol. M12
761	Ipecacuanhae amps. M12
762	Uabanin M12
763	Pandigifol M12
764	Amolisin amps. M12
765	Diathylenoxyd M12
766	Azur II M12
767	Galaktose M12
768	Glykok11 M12
769	Triketohydrindenhydrat M12
770	Dimethylgloxin M12
771	Benzildioxim M12
772	Rosolsaure M12
773	Xylose M12
774	Rhamnose M12
775	Thymolphthalein M12
776	Diphenylamin M12
777	Indolessigsaure M12
778	Dichlnrphenolendolpholnatrium M12
779	Inosite M12
780	Dulcit M12
781	Trypaflavin M12
782	Kinine tab. M12
783	Lebanarin M12
784	Antimalaria Mittel M12
785	Roimetil M12
786	Haisung M12
787	Anti D. M. M12



## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
788	Hunterin M12
789	Pituglandol M12
790	Comet Ominin M12
791	Lebanarin
792	Neo Minoalin
793	Quinophenum
794	Otox B
795	Marukofen
796	Yome Oil
797	Hexamin-Salicyl-Coffein
798	Premaline
799	Perabrodil
800	Omunal
801	Novonol
802	Theoxan
803	Kidonin
804	Methylen Creosote
805	Sumikomo
806	Blenolin
807	Hexophan
808	Eutolmin
809	Fibrogen
810	Malaria tabs. M12
811	Tokakina tabs.
812	Karojin ointment
813	Toriharomin
814	Glob. Olei Santali
815	Erstin
816	Arushiren tabs.
817	Borraginol Ointment
818	Anaptol
819	Kachifer Tablets
820	Sovolin
821	Aterian pdr.
822	Taugen
823	Iszilin
824	Apellagrin
825	Igrosin
826	Kativ
827	Antivenom Serum, 4 vials M10
828	Camphora Depurata "Pulv"
829	Neoarsaminel
830	A. M. C.
831	Neosporicide
832	Annaka sol.
833	Glucseserria
834	Sal Carolinum Factitium
835	Unguentum Rhoicum
836	Mercury Ointment
837	Sporcide
838	Creolin
839	Base Plate Paraffin
840	Fristle Discs, #9 and #11
841	Blanor M02
842	Wax Sheets, #1 M02
843	Crown and bridge cement M02

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
844	False teeth
845	Polishing disks M02
847	Carborundum wheels M02
848	S.P.M. Flux M02
849	Platinum Flask M02
846	Triolite M02
850	Solder M02
851	Paper disks M02
852	Dental paint M02
853	Oden M02
854	Dental sterilizer, solution M02
855	Dental floss M02
856	Temporary stopping, 2 each M02
857	Platinum solder M02
858	Jeweler's rough M02
859	Wax, sticky M02
860	Rustless alloy M02
861	Borax Paste M02
862	Dura Silver M02
863	Carborundum disks M02
864	Carborundum speed wheels M02
865	Cement M02
866	Silver alloy
867	Formocresol M02
868	Blue Inlay Wax M02
869	Dental Burrs M02
870	Brass Ligature M02
871	Rubber, distilled M02
872	X-ray film, dental M02
873	Orden M02
874	Carbolite disks M02
875	Bite blocks M02
876	"Theoe" M02
877	Gold wire M02
878	Dental "Neogie" M02

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "R".

ITEM NUMBER	TENTATIVE NOMENCLATURE
382	Apparatus, Thermocautery, German, vet.
383	Cutter, type undetermined, W/case, vet.
384	Set, surgical instrument, vet.
385	Set, syringe, 20 cc, vet., w/wooden case
386	Set, syringe, 30 cc, vet., w/wooden case
387	Set, syringe, 50 cc, vet., w/wooden case
67	Set, syringe, 5 cc, vet., w/metal case
388	Board, cutting, ruled
389	Flask, graduated, w/case
390	Set, "tumor-treatment", vet.

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
391	Set, trephaning instrument, vet.
392	Set, microscopic accessories, vet.
393	Set, histological preparation, vet
66	Instrument, horse measurement, 3 types
394	Syringe, glass, 10 cc, w/filling stopper, 2 each
395	Applicator, powder, bakelite, vet. 2 types
396	Inhalor, oxygen, dog, vet.
397	Set, vulva operator, vet.
398	Set, syringe, w/rubberoid case
399	Kit, clysterizing, Chinese, vet.
400	Instruments, vet. Samples from China, 2 doz. assorted
401	Apparatus, glass, type undetermined vet.
402	Accessories, microscope, Leitz
403	Kit, vet. med, w/leather case
404	Records, vet. blank forms
405	Lamp, electric, vet.
406	Container, portable, type undetermined, vet.
407	Bucket, rubber

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "S".

ITEM NUMBER	TENTATIVE NOMENCLATURE
879	Apparatus, X-ray, field, vet.
880	Accessories, "Shiron" incubator, vet.
881	Instrument type undetermined
882	Apron, lead, X-ray, vet.
883	Vulcanizer, vet.
884	Case, canvas, for lamp electric, vet.
885	Lamp, kerosene
886	Bucket, canvas and metal, vet.

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "T".

ITEM NUMBER	TENTATIVE NOMENCLATURE
887	Set, testing, urine and water
888	Viewer, X-ray plates, vet.
889	Slings, for carrying cutter, medical, 2 each
890	Pouches, medical, leg, paratrooper, 2 pair
891	Set, First aid, vet.
892	Gloves, rubber, gas casualty treatment, vet.
893	Bandage, horse, vet., assorted, 6 each



## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
894	Funnel, leather, vet.
895	Hood, horse, vet.
896	Suit, veterinary's, all rubber
897	Pouch, rubberized, vet, 2 each
898	Pads, flexible, wool, vet., 5 types
899	Harness, restraining, vet., 4 types
900	Markers, route, hospital, vet.

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "U".

ITEM NUMBER	TENTATIVE NOMENCLATURE
901	Normal horse serum
902	Exama Medicine
903	"Enema"
904	"Colloid liquor"
905	Camels, hair
906	Pepper Oil
907	Camphor tar
908	Gold varnish, dental
909	Leather cream
910	Horse serum
911	Ryrisuron
912	Creosol pdr.
913	Tar of Flea Dung
914	Tincture of Iodine w/container
915	Peruvian Balsem
916	Kreolinum
917	Neo Poleon
918	Sucwalen
919	Pomegranate skin
920	"Nutrious food for Sick Horses"
921	"Stirrup sore" medicine
922	Carbanoylcholinchloride
923	Neoliser solid
924	"Effective ointment"
925	Wilson oint.
926	Vaseline substitute
927	"Supo" acid
928	Arrowroot roo
929	Centinol ointment
930	Concentrated tar
931	"Gland serum"
932	Oxfull tabs.
933	Injection for "soft bone disease"
934	Rape seed oil
935	Dried serum pdr.
936	Camphor solution
937	New Sterilizer liquid
938	Coconut oil
939	Disulfanilamide

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
940	Cresol solid
941	Charbon test sol.
942	Morphine Chloride

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ITEMS TO BE SHIPPED TO TECHINICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "V".

ITEM NUMBER	TENTATIVE NOMENCLATURE
943	Ovisot amps.
944	Osuban tablets
945	Gonometon amps.
946	Thorogestin amps.
947	Frostbite cream
948	Diazo Reaction solution, 2 bottles
949	Wax ointment
950	Cholera vaccine M10
951	Antityphus vaccine M10
952	Dried agar media M10
953	Dried Ox Gall M10
954	Epidemic Meningitis vaccine M10
955	Prophylactic against Paratyphoid "A" M10
956	Paratyphoid type A and B M10
957	Antigangraen serum M10
958	Prophylactic against Paratyphoid "B" M10
959	Prophylactic against Typhoid M10
960	Tetanus vaccine M10
961	Plague vaccine M10
962	Gangraen vaccine M10
963	Antitetanus vaccine M10
964	Diphtheria prophylactic M10
965	Antivenom serum M10
966	Diagnostic serum for typhoid M10
967	Test paper for poisoned water, (cyanic acid)
968	Test paper for poisoned water, (sublimite and heavy metals)
969	Diagnostic serum for early Typhus M10
970	Endo media tablets M10
971	Artificial Lackmuamolke M10
972	Kaufman media tab. M10
973	Dysenterie bacillus med. tab. M10
974	Diagnostic serum for Paratyphoid B M10
975	Antitetanus serum M10
976	Diagnostic serum for cholera M10
977	Diagnostic serum for B paradysenterie Y M10
978	Reagent for Wassermann reaction M10
979	Diagnostic serum for B Gaetnerie M10
980	Diagnostic serum for BP's
981	Diagnostic serum for B Dysenterie M10
982	Tuberculosis media tablets M10
983	Neutral red media tablets M10
984	Diagnostic serum for paratyphoid bacillus M10

## ENCLOSURE (E), continued

ITEM  
NUMBER

## TENTATIVE NOMENCLATURE

985	Anti Serum against Weil's disease M10
986	Paratyphoid bacillus type "C" M10
987	Bacillus Proteus X-19 diagnostic for Widal's reaction M10
988	Diphtheria toxin sol. for Shick test
989	Paratyphoid Bacillus type "A" M10
990	Paratyphoid Bacillus type "B" M10
991	Typhoid Bacillus M10
992	Tuberculin M10
993	Antigasangraen serum M10
994	Anti Typhus vaccine M10
995	Anti Tetanic serum M10
996	Anti Tuberculosis prophylactic (B.C.G.) M10
997	Standard blood typing serum M10
998	Aronson media tablet M10
999	Dried Lingersheim media with lactose M10
1000	Dried Lingersheim media M10
1001	Ducrey vaccine M10
1002	Wassermann reaction M10
1003	Dried neutral peptone
1004	Rassel media tablets M10
1005	Dried vaccine (anti-pock) M10
1007	Diagnostic serum for Paratyphoid bacillus "C" M10

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST,  
BOX "W".

ITEM  
NUMBER

## TENTATIVE NOMENCLATURE

1008	Taurin N.G.
1009	Anthenin pdr.
1010	Aleviatin pdr.
1011	Cement, dental, 9 shades M02
1012	"Schleich II" sol. amps.
1013	Emplaste, saponat, German
1014	Ekien Magotin
1015	Borotopin
1016	Mercury "Resorbin"
1017	Dikezal amps.
1018	Pneumosil sol.
1019	Theociso amps.
1020	Mutterpflaster, German
1021	Neo Furomon
1022	Neo Cystol
1023	Neo Staagen
1024	"Mex"
1025	Alwajin
1026	Adberin
1027	Electoid Sulphur
1028	Decocti Uva Ursi
1029	Atominoze
1030	Hydnocain



## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
1031	Hydnol
1032	Jodonasoin
1033	Guleon
1034	"Neo Sarat"
1035	"Klon" crystals
1036	Halomin
1037	Sangostop (Dutch)
1038	Marukopan
1039	Regerot Salbe
1040	Novasurol
1041	Bismuth subiodide
1042	Taeniol
1043	Sanarin
1044	Sanarin
1045	Kavikan
1046	Bren Paste
1047	Slangengif serum
1048	Leucoteer
1049	Zellatmin
1050	Alkanza
1051	Peryth
1052	Gono Coccen vaccine M10
1053	Pyrabitalum
1054	Barbitalum
1055	Percamin
1056	Aethyluim Aminobenzoicum
1057	Karbunken
1058	Neohexal
1059	Eustolmin
1060	Hoppus
1061	Flavinin
1062	Nelkegan
1063	Imamicol
1064	Anocuron
1065	Nagravon
1066	Lynosol
1067	Sexcol
1068	Lypase
1069	Matxin
1070	Urizinol
1071	Phthiisol
1072	Eatan
1073	Neo Pieron
1074	Borovertin
1075	p-Oxydiphenylacetase
1076	Erisot-"Comet"
1077	Ericatin
1078	Fischlin
1079	Papain
1080	Depromin
1081	Phloxin
1082	Utalmol
1083	Neothetin
1084	Leprol
1085	Agotin
1086	Neu Maruconinum

## ENCLOSURE (E), continued

1087 Hectalin  
 1088 Humanin  
 1089 Chinaselin  
 1090 Ymolin  
 1091 Smilgen  
 1092 Tuberculin M10  
 1093 Strong sterilizer, liquid  
 1094 Livenol amps.  
 1095 Tabellim  
 1096 Pile cure  
 1097 "Tonsillitis" pdr.  
 1098 Oma pdr.  
 1099 Purgative tablets  
 1100 Halomin amps.  
 1101 Oxygen sublimate  
 1102 Army drug for Influenza, 2 bottles  
 1103 Frostbite solution  
 1104 "Poison gas destroyer" QC  
 1105 Adaper tablets  
 1106 Liver tab.  
 1107 Tectral tablets  
 1108 "Gelp" sol.  
 1109 Heherin yeast pdr.  
 1110 Guen extract  
 1111 Datuloid tab.  
 1112 Neo cycitol  
 1113 Dandellia, dried  
 1114 Hifuoru, (sore cure)  
 1115 Parpitone  
 1116 Burn ointment QE

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LIST OF ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE CENTER, APO 500 SHIPPING LIST, BOX "X".

ITEM NUMBER	TENTATIVE NOMENCLATURE
1126	Kit, dental, small, substitute
1127	Tachometer
1128	Urethral speculum
1129	Amphotropine
1130	"Tussiast" powder
1131	"Vaccine tablet, anti-typhique"
1132	"Gasoeeden serum" solution
1133	Lamp, electric, portable
1134	Tensometer, hand, small
1135	"Soxyl"
1136	"Fizilin" solution
1137	Thermometers new type
1138	Sharpener, cork borers
1139	Stapler, surgical
1140	Kit, nasal surgery
1141	Dressing, wet, "No. 900"
1142	Set, dental surgery, large
1143	Set, cork-borers

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE
1144	Part for fluoroscope (item 18)
1145	Lamp, examination, with headband
1146	Surgeon's clothing, assorted
1147	Kit, orthopedic clamps
1148	Forceps, gauze, wooden
1149	Clamp, ice bag, new type
1150	Kit, enema
1151	Paper, oilsilk, for dressings
1152	Kit, "liquid absorbing", accessories
1153	Lamp, nasal examination
1154	Clock, interval-recording
1155	Rabies vaccine

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LIST OF ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE CENTER, APO 500 SHIPPING LIST, BOX "Y".

ITEM NUMBER	TENTATIVE NOMENCLATURE
1156	Kit, alcoholometer
1157	Kit, cautery, large
1158	Kit, urethral speculum
1159	Kit, joint flexibility measurement
1160	Kit, proctoscope
1161	Kit, bone fixation
1162	Kit, animal dissection
1163	Pouch, medical soldier, canvas and fur
1164	Kit, first aid, aircraft, original type M06
1165	Microscope, folding, small, leather case
1166	Balance, folding case, small
1167	Balance, Harvard beam, medium

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ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST, BOX "AA".

ITEM NUMBER	TENTATIVE NOMENCLATURE
1227	Scales, 500 gram capacity
1228	Kit, insect collection
1229	Kit, canules
1230	Pins, orthopedic, (Steiman), 2 types
1231	Microscope, folding, small. (This item and item #1165 differ from previously reported microscope in construction of case only).
1232	Hone, four-sided, large



## ENCLOSURE (E), continued

ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE DEPOT, APO 500 SHIPPING LIST:  
ITEMS ARE PACKED SEPARATE BY NUMBER.

ITEM NUMBER	TENTATIVE NOMENCLATURE	CASES
1	Set, water testing, portable, small	2
2	Laboratory, field, portable, (Army)	61
3	X-ray, field, portable, w/generator	15
4	Laboratory, gas and water testing portable	9
5	Hospital, gas casualty, horse-carried QC	4
6	Chest, water filter	1
7	Chest, gas casualty	1
8	Chest, Hypodermic	1
9	Chest, microscope accessories	1
10	Chest, field sterilizer	1
11	Chair, dental, folding	1
12	Generator, ozone	1
13	Electrometer	1
14	Container, water, air-drop	1
15	Meter, lung capacity	1
17	Parachute, cargo, medical, cotton	1
18	Fluoroscope, camera style 35mm	2
19	Litter, bamboo, folding	1
20	Dynamometer, back miscles	1
23	Dispensing kit, wooden	1
24	Reservoir for stomach pump	1
32	Microscope, type undetermined	1
40	Laboratory, field, portable, (Division)	47
41	Hospital, field, portable	18
42	Chest, sterilizer, hospital, field	1
43	Set, meat inspection	9
44	Set, meat inspection	11
45	Hospital, field, vet.	5
46	Hospital, field, vet.	7
47	Set, gas casualty treatment, field, vet.	2
48	Set, disease prevention, vet.	17
49	Hospital, shipboard, portable, vet.	5
50	Set, examination, (purchasing), vet.	3
51	Set, surgical instrument, vet.	2
52	Set, surgical instrument, vet.	2
53	Set, meat inspection	2
54	Set, surgical instrument, shipboard, vet.	3
55	Set, dispensing, vet.	3
56	Set, surgical, vet.	9
57	Set, dog treatment	1
58	Chest, gas casualty, vet.	1
59	Chest, horse examination	1
60	Set, surgical hospital, vet.	7
61	Chest, laboratory, portable, vet.	1
62	Chest, dog examination, (Purchasing), vet.	1
63	Chest, surgical instrument, vet. (German)	1
64	Kit, surgical, vet.	1
65	Unit, X-ray, field, vet.	2
68	Chest, laboratory, portable, small, vet.	1
69	Chest, laboratory, portable, vet.	1
70	Sterilizer, field, vet.	1
71	Power unit, X-ray, field, portable, vet.	1
72	Meter, -CO2 in air	1

## ENCLOSURE (E), continued

ITEM NUMBER	TENTATIVE NOMENCLATURE	
73	Tubes, X-ray, new type	9
74	Tubes, diathermy, new type	2
242	Chest, surgical instrument, type 99, box #1 (Box #2 recovered June 1945)	1
243	Chest, surgical instrument, newest type	1
248	Chest, surg. instrument, basic, type undet.	1
261	Balance, torsion, 500mg.	1
262	Sphygmopiezograph	1
408	Chest, first aid, aircraft, sub. type	1
409	Cover, litter, metal	1
410	Meter, gas in blood	1
411	Heater, individual patient, gasoline	1
412	Tent, individual patient	1
413	Container, air-drop, med. sup. w/parachute 2 each	2
414	Set, treatment, military pigeon, vet.	1
415	Set, treatment, military dog, vet.	1
416	Kit, developing, X-ray	1
417	Can, gasoline	1
418	Kit, X-ray, accessories	1
1117	Infra Red Ray apparatus	3
1118	Hospital, field, portable, (Regimental)	16
1119	Hospital, shipboard	19
1120	Gas casualty treatment station	2
1121	Crate, medical supply, sub. type	1
1122	Anti gas casualty kit, sub. type, officers	2
1123	Kit, anti gas casualty, sub. type, NCO	1
1124	Kit, anti gas casualty, sub. type, privates	1

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LIST OF ITEMS TO BE SHIPPED TO TECHNICAL INTELLIGENCE CENTER, APO 500.  
ADDENDUM TO SHIPPING LIST OF ITEMS SEPARATELY PACKED.

ITEM NUMBER	TENTATIVE NOMENCLATURE
1125	Set, gas casualty treatment, 2 cases
1168	Pouch, medical soldier's, fur
1169	Kit, "blood circulation treatment"
1170	Set, abdominal retractors, large
1171	Generator, oxygen
1172	Barometer, mercury
1173	Accessories, oxygen apparatus
1174	Kit, surgical instrument, type undetermined



## ENCLOSURE (E), continued

ITEM  
NUMBER

## TENTATIVE NOMENCLATURE

1233	Gastrograph
1234	Vison tester, new type
1235	Scales, 100 kg capacity
1236	Goniometer
1237	Kit, X-ray accessories, small
1238	Microscope Camera, in case
1239	Accessories, microscope camera in case
1240	Set, laboratory, small, 2 case
1241	Meter, depth perception, in case
1242	Perimeter, for visual test
1243	Pulmotor, oxygen, 2 types
1244	Film, X-ray, large, in case
1245	Camera, X-ray, "for motor car"
1246	"Reducing Camera" in case
1247	Set, bacteriological laboratory, incomplete, 22 cases





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